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There are a large number of the younger men in attendance at the convention, but with a few exceptions they seem to be listeners at the meetings and do not engage actively in the discussions. A study of the makeup of the committees for the past year shows that the executive committee has attempted to place as many of the younger men on the various committees as possible. It is handicapped in the proper selection of these men because of the difficulty in locating the best material. The only clue that the committee has to enable it to locate the young men of ability and who are interested in the work of the association is by the way in which they take part in the meetings. If one expresses himself clearly and forcibly, and shows that he understands the subject he is talking on, he will be sure to attract the attention of the officers and be given an opportunity to engage actively in the committee work. After all, the real work of the association is done between the conventions, and if a young man is fortunate enough to be selected for such work he should put forth his best efforts to make good.

It seems almost impossible that a railway would ask its mechanical department representatives to attend the conventions at Atlantic City, with instructions to look into and report on certain matters of special interest to the road, and yet not pay their expenses. While attending the conventions is a change from the routine of the office, the shop and the road, it is not a vacation by any means, if the representative attends the meetings and looks over the exhibits. There seems to be a more or less mistaken idea in some quarters that the supplyman's chief delight is to entertain the railway officer in such a way as to keep him from making the best use of his time while at the convention. The exhibitors, however, spend too much time and money preparing attractive exhibits to do anything which would tend to keep the railway officer from spending all his time on the Million Dollar Pier. The railway man probably works harder and uses his head more while attending the convention than he does in the same amount of time in his office or shop. The inspiration and the broadening effect of spending a few days meeting and exchanging ideas with men engaged in the same work from all over the country, and in looking over the exhibits, can hardly be overestimated. Fortunately, the number of roads that do not pay the expenses of their representatives is growing smaller each year, and in most cases the roads not only pay the expenses of their men but insist on their attending the conventions.

The M. C. B. Association and the manufacturers have pounded away at the draft gear for years, and have developed methods and machines by which the most beautiful resistance curves could be made and interpreted to mean just what was wanted to show. And then, on the sly, the tester would take you aside and say that too much confidence should not be placed in any drop test, and advise you to look to service results; and if you looked, you saw that cars were punished and gears distorted in a way that did not quite tally with the drop test results. Then you got confused. The proposition, therefore, to build a machine that would work with weights and velocities approximating those of loaded cars is to be welcomed. The very fact that the proposition to build such a machine is considered seriously shows that the importance of the question is appreciated and that the railways are willing to spend large sums of money to get the desired information. But, before any such testing machine as that proposed is built it would be well to consider its design most carefully, and so modify it that it will give motions more closely in accordance with the results in actual service. As it stands the two weights approach each other on the line of a circle, and separate along the same lines. That the approach should be in this way is not very objectionable; but it would seem to be most desirable that after impact the weights should move in a straight horizontal line as they are in service. It would not be a very difficult matter to so modify the apparatus that it would work in this way, and then the results obtained would probably be above criticism.

No one who knows would ever suggest that the members of the M. C. B. Association are seriously afflicted with stage fright as a whole. And no one who was present and noted the crowded condition of the room during the whole of the sessions would feel warranted in declaring for a lack or even a decline of interest in the proceedings. Yet the fact is apparent that the volume of discussion is much less than it has been heretofore, though the importance of the reports has not fallen away. To one who has followed the work of the association for a number of years and listened to the hours of talk where members were of different minds because they were apparently getting different results with the same things, it seems as though these differences in results, which have been invariably found to be the result of working under different conditions, are disappearing, and conditions are becoming more uniform. Probably the wide adoption of the same standards has much to do with it, and the balance is due to the fact that members have come to realize that natural laws always work in the same manner, and differences are due to resultant and not individual effects. Then, too, the committees are gathering information with so much skill and presenting it so effectively that it is becoming more and more difficult to question their conclusions or criticise their methods. A man may ask questions for further information, and he usually get it, but that phrase, "There are some points upon which I differ with the conclusions of the committee," is now very rare. It has been said that, under the rules of strict

logical deduction, all men starting from the same premises will reach the same conclusions. So it seems as though these committee reports has been so carefully drawn that discussion is superfluous. At any rate, the convention, just closed, transacted an amount of business in the three days of its existence that would have been utterly impossible even ten years ago, because of the amount of discussion that would have taken place. It is to be hoped, however, that matters will not come down to such a point of concentration that the proceedings of the conventions of the future will hold the same relation to those of the past that a capsule lunch does to a square meal.

THEODORE H. CURTIS.

A training as mechanical engineer and a considerable period of service in that line have, so far as history is concerned, very seldom led to the position of superintendent of motive power and machinery. It would seem, however, that this is the logical course, admitting, as is generally done in these later days, that some training aside from that of practical experience in the motive power department is desirable.

In this respect Theodore H. Curtis, president-elect of the Master Car Builders' Association, has had a training not wholly unlike that of his predecessor. He, too, is a product of the middle West. Born at Terre Haute, Ind., in 1866, he entered railway service as draughtsman for the Big Four in 1886. He continued the work of the draughting room with the Brooks Locomotive Works and Pittsburg Locomotive Works to 1889 and was afterwards chief draughtsman for the Nickel Plate for about 12 years. Subsequently he was appointed mechanical engineer of the same road; in 1899 he went to the Erie and in 1901 to the Louisville & Nashville in the same capacity; and in 1903, after the death of Pulaski Leeds, he was appointed superintendent of machinery and has held that position to the present time.

Mr. Curtis was known as a capable mechanical engineer before he was appointed to a higher position and that reputation he has still maintained and enhanced notwithstanding the pressure of executive duties. He is a close student of mechanical propositions and not over-eager to express an opinion until he has sounded the depths and weighed carefully the reasons therefor. In this respect, also, he resembles his predecessor.

The heritage which came to him as the natural successor of Pulaski Leeds on the untimely death of the latter was one of which the conditions were not easy to fulfill. Though universally recognized as a man of practical ability and sound judgment, Mr. Leeds emphatically had his own ways of doing things. They were generally not the ways that are taught in modern schemes of education. That Mr. Curtis has successfully handled the duties of the position and with such capability as to merit recognition at the hands of fellow officers of the mechanical departments in the election to one of the highest offices in their power to bestow, indicates that the methods of training to which the younger generations have been subjected are capable of bearing useful fruit.

NO CONSOLIDATION THIS YEAR.

Of course, nobody really expected that the consolidation of the mechanical associations would be effected in a fall-in-love-at-first-sight sort of way. In fact, the two organizations have been coquetting too long (about twenty years); and the members are too long headed and have been too well trained in the development of their standards to tie up indissolubly on the reception of the first serious report, though it did look, for the first few minutes after the presentation of the report, as though the convention was to be stampeded into a hasty action. There was not a sound from the floor for awhile except a proposition to submit consolidation to letter ballot. But silence long continued and timid is not a marked characteristic of the members; and it was followed by brief presentations of the pros and cons, either of which might, if heard alone, so convinced a certain Dutch justice that he would have made up his mind. The particular magistrate referred to, on hearing the statement of one side of a case, declined to listen to the other on the ground that he had made up his mind and did not want to be confused.

But both sides were heard—the advocates of the necessity of minimizing the time occupied and, on the other hand, those who hesitated because of the strain of a week's concentrated effort; of the value of acquaintanceships formed between sessions; of the influence on manufacturers in presenting their wares at the exposition; of the importance of the work to be done; of the probable effect on the status and efficiency of the car department; and of the necessity of careful consideration. The last-mentioned point, being the most important, very properly received the consideration that it deserved, and all propositions to refer the question at once to a letter ballot were set aside, while the suggestion to consolidate was tabled for a year, and the matter was referred to the executive committee for due consideration.

It was urged that during the coming year the members give the subject most careful thought, so that when they come together again they will be in a position to decide as to what should be done. Meanwhile the executive committee will examine into the legal features of the question.

While the matter is in abeyance, it seems as though one suggestion were worthy of the most careful consideration. It was to the effect that a "trial marriage" be effected—that before complete consolidation is effected the two associations come together in joint session for a single week to test by actual experience whether they are adapted to live together and can do their allotted work in so short a time. Such action would throw valuable light on what results might be expected from complete union.

In any event, the railway world can rest assured that no matter what is done finally, no hasty action will be taken, and that the decision finally reached will be that which is conscientiously considered to be in the best interests of all concerned, both members and railways.

SATURDAY'S AND SUNDAY'S PROGRAMS.

SATURDAY

10.30 a.m.—Orchestra concert, Entrance Hall, Million Dollar Pier.

2 p.m.—Baseball parade from Million Dollar Pier to special trolley cars.

3 p.m.—Baseball game, East *vs.* West; at Pennsylvania Railroad Company's Inlet Park Baseball Grounds.

9 p.m.—All-star vaudeville show, at Apollo Theatre.

SUNDAY

11 a.m.—Special program by Marlborough-Blenheim Orchestra, Blenheim Exchange, Marlborough-Blenheim Hotel.

UNIVERSITY OF ILLINOIS MEN—NOTICE.

All University of Illinois men in attendance at the convention are requested to get together at a dinner to be arranged for Saturday evening, June 18.

Be sure to register your name and address at the Booth of the Dearborn Drug and Chemical Company, number 8, immediately to the left as you enter the pier. Register this morning as you go in if you have not done so already.

LOST.

Lost—Badge 3298. Please return to the office of the *Daily Railway Age Gazette*, space 1.

VAUDEVILLE.

The entertainment for Saturday evening consists of a special vaudeville program given at the Apollo Theatre, under the personal supervision of Frances Rockefeller King. The program follows:

1. Overture—Selected. Conductor, Henry Conrad.
2. The Readings. Smart Singing and Dancing Offering.
   From Keith & Proctor's Fifth Avenue Theatre, New York
3. The Exposition Four.
   A Feast of Song, Music and Jollity.
   Alexander Brothers and Brady—Most Entertaining Quartette in Vaudeville.
   From Percy G. Williams' Alhambra Theatre, New York
4. Charles Leonard Fletcher.
   America's Premier Impersonator.
   Presenting His Latest Artistic Novelty—
   "An Evening with Mark Twain."
   From Keith & Proctor's Fifth Avenue Theatre, New York
5. Jane Courthrope & Company.
   By Special Arrangement.
   Offer a Breeze from the West—"Lucky Jim."
   Characters:
   Alice Stafford.....Jane Courthrope
   Teddy .....Master Ross
   Jim Hamilton.....Charles Forrester
   Shorty Martin.....Allen Damon
   Prince Jim's Chum..Heidelberg's Prince A. K. G.
   N. B.—An elapse of one year between scenes I and II.
   From Percy G. Williams' Colonial Theatre, New York
6. The Jack Wilson Trio.
   Introducing Jack Wilson—Assisted by Miss Ada Lane and Franklyn Batie in a Comedy Skit, Entitled
   "A White Man's Conception of an Upheaval in Darktown."
   From Keith & Proctor's Fifth Avenue Theatre, New York
7. Spissell Brothers & Co.
   World's Famous Eccentrics—Presenting Their New and Original Pantomime Comedy—
   "The Continental Waiter."
   Cast:
   Dume Franzel, the Waiter.....Frank X. Spissel
   Hans Blatsburger, the German.James F. Spissell
   Lidaff, a Frenchman.....John Russell
   Andie Swift, an American.....George Ayer
   Scene: Garden Cafe. Place: Vienne.
   From Hammerstein's Victoria Theatre, New York

The entertainment will be followed by informal dancing in the ballroom of the Marlborough-Blenheim, music being furnished by the Old Guard Orchestra. The sub-committee in charge consists of C. A. Dunkelberg, chairman; George R. Carr, C. W. Wardell and J. Soule Smith.

BASE BALL GAME.

The base ball parade, led by the Old Guard band, escorting ladies and players, will start at 2 o'clock this afternoon from the Million Dollar Pier. Special trolley cars will carry those in line to the Inlet Park base ball grounds. Hhe game will be called at 3 p. m. Only those wearing their badges will be permitted on cars or admitted to the park. The batting order of the two teams will be as follows:

WESTERN TEAM.

1. J. E. Tavelton, p., Union Draft Gear Company.
2. W. H. Allen, 3b., C. H. Besley & Company.
3. Adam LaMar, 2b., Pennsylvania Railroad.
4. S. W. Midgley, s.s., Curtain Supply Company.
5. H. S. Hammond, c., Pressed Steel Car Company.
6. J. D. Ristine (capt.), c. f., Union Draft Gear Co.
7. T. H. Goodnow, l. f., L. S. & M. S.
8. I. S. Downing, 1b., L. S. & M. S.
9. W. E. Sharp, r. f., Armour Car Lines.
10. W. M. Wilson, l. f., Flannery Bolt Company.
11. B. H. Forsyth, p., Ford & Johnson Company.

EASTERN TEAMS.

1. C. B. Gilman, c. f., Q. & C. Company.
2. Wm. Murray, 2b., Jenkins Brothers.
3. H. Oviatt, 1b., N. Y. N. H. & H.
4. F. Martin (Capt.), 1b., Jenkins Brothers.
5. J. E. Jeffreys, s. s., B. & O.
6. H. Shoemaker, r. f., D. L. & W.
7. C. Beaumont, 3b., B. & O.
8. B. Stevenson, c., Griffin Car Wheel Company.
9. T. S. Dowling, Jr., p., Manning, Maxwell & Moore.
10. J. Enright, c., Wm. Sellers & Company.
11. P. Jones, l. f., Dearborn Drug & Chemical Works.

UMPIRES.

W. E. Cade, Frank A. Barbey Company.
T. F. Barton, D. L. & W.
H. E. Passmore, T. & O. C.

After indefatigable exertion our enterprising reporter at last succeeded last night in obtaining interviews with the captains of the teams. They were taking their final rub-down after a period of most strenuous training. Captain Ristine, of the Western aggregation, was found to be apparently in the pink of condition, though he absolutely refused to talk. It is surmised in quarters where authoritative information is generally on top that the advertisement for a battery for his team was simply a well-conceived bluff and a repetition of last year's sharp practice to throw the opposing team off guard. It is stated by those who ought to know that he really has a collection of world-beaters.

Likewise Captain Martin gave out no dope, but his knowing smile when some enthusiast remarked in his presence that the Eastern team "could put it all over any Windy City aggregation" leads to the belief that he is confident of success, notwithstanding that one of his crack artists, L. J. Hibbard, Cornell, '03, who played short-stop on the 'Varsity, and has heretofore played on the Supply Men's team, will to-day be fully occupied with his duties as chairman of the base ball committee.

CLUB SECRETARIES.

The annual meeting of the Railway Club Secretaries' Association will be held this morning at 10 o'clock in Room 130, Marlborough-Blenheim. Those who expect to attend the dinner in the evening are urged to be prompt in order to enable attendance upon the vaudeville at the Apollo Theatre.

SUPPLY MEN'S DISTRICT ELECTIONS.

The District Elections for members of the executive committee of the Railway Supply Manufacturers' Association were held in Convention Hall yesterday afternoon, and resulted as follows:

District No. 2, embracing the states of New York and New Jersey—Lucien C. Brown, United Equipment Company, New York, and Edward H. Walker, Standard Coupler Company, New York.

District No. 4, embracing the states of Ohio, Michigan, Kentucky and Tennessee—Herbert I. Lord, Detroit Lubricator Company, Detroit, and John R. Blakeslee, Ajax Manufacturing Company, Cleveland.

District No. 5, embracing the states of Illinois, Wisconsin, Iowa and Minnesota—W. W. Rosser, The T. H. Symington Company, Chicago.

The elections of the above named executive committeemen will be reported to the annual meting of the Railway Supply Men's Association to be held to-day.

Proceedings.

President Clark called the closing session of the Master Car Builders' Association to order at 9:50 a. m.

The President: As announced yesterday, the election will take place to-day. The polls will open at 10 o'clock and close at 11:30. I will appoint three general tellers, who will count the votes for the officers and deliver the votes for other candidates to the respective tellers. The three general tellers will be, R. V. Wright, George Goodrich and W. O. Thompson; for members of executive committee, two tellers, H. L. Trimyer and I. S. Downing; for the committee on nominations, two tellers, S. T. Park and J. J. Tatum; for associate and life members, two tellers, C. A. Seley and R. L. Kleine.

The Secretary read Article 8, Section 10 of the constitution, relating to elections, and explained the method of balloting provided for putting a name before the Convention. That is, for life membership. For associate membership there is only one name, Professor Endsley. That was proposed a year ago.

I would like to say that the committee on nominations, on account of the withdrawal of Mr. Parish from the Railway Service, proposes in his stead the name of D. F. Crawford, General Superintendent of the Pennsylvania lines west of Pittsburg, for president. The candidates for president, as proposed by the committee on nominations, are Mr. Curtis, Mr. Stewart, Mr. Crawford. For vice-president, in place of Mr. Parish, the name of Mr. E. D. Bronner has been proposed. The list of vice-presidents in nomination is: Mr. Curtis, Mr. Stewart, Mr. Crawford, Mr. Fuller, Mr. Bartlett, Mr. Bronner. You can vote for three of these, or three others that you may choose.

Of course, gentlemen, you understand at the first day's session we read a communication from Mr. Kirby, in which he asked to have his name withdrawn as a candidate for treasurer. He is now 87 years old, and he does not very often come to convention, and he asked to be relieved from service. Have I made myself clear to all the members as to the voting?

The President: I will ask the general tellers to distribute the ballots. The general distributers are R. V. Wright, George Goodrich and W. O. Thompson, and I will ask the general tellers, in addition to canvassing the vote for president, to canvass the vote for treasurer.

The next order of business is the reception of the report of the committee on consolidation of Master Car Builders' and Master Mechanics' Associations.

The secretary read the report of the committee.

CONSOLIDATION.

The committee appointed to present the advantages or disadvantages of the union of the Master Car Builders' and the American Railway Master Mechanics' Associations into a new association, and to propose a constitution therefor, beg to report as follows: Apart from any legal questions, it may be granted that neither the Master Car Builders' nor the Master Mechanics' Association would agree to being absorbed by the other. Both have a long and honorable history. Founded in 1867 and 1868, respectively, each has accomplished magnificent results in the investigation of the multitude of problems that have arisen in the gradual development of American railway rolling stock, and in the determination of national practice in design and operation. Both are to-day progressive and successful. There is no question of either needing the assistance of the other to ensure its continuation or development. They stand as preëminent examples of voluntary associations of men employed by the railway companies of the country who have labored and studied for the benefit of those companies as a whole.

Such being the case, if it be decided that, for the benefit and convenience of the members of these associations, it is advisable that their work be continued by one united society in place of two separate ones, the only feasible plan would be to form a new association to take the place of the two older ones, and independently and voluntarily terminate their existence. The legal questions involved in such proceedings require investigation, and it is possible that technically some different arrangements would have to be made. This is not, however, material, and we assume that the question for discussion is not that of absorption or consolidation, but the formation of a new and united association, which, including in its members employees of both the car and locomotive departments of our railways, may be called The American Railway Mechanical Association.

A change of this kind is important and should, we believe, if carried out, be only made after the most careful consideration.. There are, no doubt, however, powerful reasons in favor of such a movement; reasons which have developed from the change which has taken place in the organization of the mechanical departments of the railway companies themselves during the existence of the two associations.

The appointment of a joint official in charge of both car and locomotive departments has led to the same men being largely in charge of the design, construction and maintenance of both cars and locomotives. The consequence is that men are attending the Master Car Builders' Association in connection with car matters, and the Master Mechanics' Association in connection with locomotive matters. To a great extent, therefore, the reasons that previously existed for the maintenance of two separate associations have been gradually removed. There is, no doubt, still a considerable feeling in favor of their retention, and it was voiced very clearly by President McKenna in his address to the Master Car Builders' Association last year. We can not do better than quote his words:

"For years the question of consolidating the Master Car Builders' and the American Railway Master Mechanics' Associations has been the subject of discussion. Such action has heretofore not been deemed either necessary or desirable, and conditions at present do not indicate that it would now result in any benefit to railway companies. Unless improvement is possible, changes should not be favored. The two associations are separate and distinct so far as their line of action is concerned. The Master Mechanics' is of a technical character, having no legislative powers, and as the Master Car Builders' find it impossible to devote sufficient time to the proper consideration of the various reports submitted to them, the proposed consolidation seems unwise, especially as new topics, new subjects and new discussions would be introduced into one deliberation. There is sufficient work for each association in its own particular field, and, as the method of procedure in handling work incident to locomotive repairs and construction, car repairs, construction and interchange, differs so very materially, it would seem desirable to handle them as two separate and distinct branches, so that the questions incident to each will be considered by two separate and distinct associations."

Mr. McKenna's remarks undoubtedly require the most careful consideration. They may be regarded not only as a personal opinion, but as expressing that of a large proportion of the membership of the association over which he presided. They describe the Master Car Builders' and Master Mechanics' Associations as having separate and distinct fields of action; the Master Mechanics' as being technical in its nature, while the Master Car Builders' has rather that of a legislative body. There is, no doubt, a great deal of truth in these distinctions, and yet it is questionable whether they do not refer rather to conditions existent in the past than those of to-day. The legislative nature of the Master Car Builders' Association is entirely caused by the successful action of a voluntary association in organizing the rules governing the interchange of equipment between the railway companies of the country. These rules have been so wisely drawn and fairly administered that, without any direct powers having been granted to the associations by the railway companies officially, their accedance has in practically all cases been obtained, and the Master Car Builders' Association is to-day recognized as the organization empowered to formulate regulations required to enable the transfer of cars from road to road with the greatest dispatch consistent with the respective interest of owner and user. This has been but one part, however, of the work of the Association, although it has been so well done that it has secured the admiration and endorsement of all railway managements and has led to this being regarded, perhaps, as its greatest field of usefulness. The other, and equally important, part has been that of a great technical society specializing on subjects connected with the car department and thus supplementing the work of the master mechanics in the locomotive field. The subjects being investigated by committees this year are, with the exception of those pertaining to the interchange of cars, just as much the work of a technical association as are those in the Master Mechanics' Association. The condition actually is that two large engineering societies are in existence: the one investigating matters connected with the design, construction and maintenance of locomotives, the other with similar subjects for cars, while the latter at the same time determines the rules governing the interchange of equipment.

Now, the question really is: Are these lines of action separate and distinct? Are the particular fields of these two associations diverse? Such a question would certainly be answered in the affirmative were different departments of the railways concerned, such as is the case with mechanical work and that under the charge of members of the Engineering and Maintenance of Way or the Association of Railway Accounting Officers; such as was the case with the work

handled by members of the Master Car Builders' and Master Mechanics' Associations.

That it should be answered in the affirmative under present conditions is more doubtful. It is indisputable that the car and locomotive departments in our railways have very generally been united under one head, and that year by year more of the men who are interested in the work of one association have become interested in that of the other. This is, perhaps, more clearly illustrated in the representative membership of the Master Car Builders' Association than in any other way. There are 276 representative members, representing 2,318,607 cars, of which 89, representing 71,550 cars, are officers of other than the car or locomotive departments or of private car lines. Of the balance of 187 members, representing 2,247,057 cars, 162 or 86½ per cent are officers of both the car and locomotive departments, while the number of cars represented by them is 1,705,276, or 75.8 per cent, compared with 541,781 represented by members bearing car department titles only. While not to the same extent, the same is true of the membership as a whole. Out of a total of 515 members whose titles indicate their employment in the mechanical department of a railway, 320, or over 60 per cent, are connected with both car and locomotive affairs.

To state, therefore, that the lines of action and the fields of usefulness of the two associations are entirely separate is to-day simply to differentiate between the various lines of work that are carried on and taken charge of by, to a large extent, the same men. There is a wide difference between a question affecting the design of a cast-iron wheel and one relating to the efficiency of superheaters, but there are also wise differences between the designs of front ends and efficient methods of shop organization, or between the preparation of specifications for couplers and the best method of loading long materials. The fact is that the work for which a mechanical official is held responsible is diverse and multifarious, but the same principles have to be applied in the economical maintenance of cars as in that of locomotives, the same scientific methods are necessary in determining the relative economy of various designs of engines as in the proper system for painting cars. The same men in general are carrying on these many subjects, not as master mechanics or master car builders, but as employees of the mechanical departments of the railways, acting on committees in the Master Car Builders' Association on one subject and in the Master Mechanics' on another, as can easily be seen by a glance at the personnel of the various committees.

The conclusion is evident that the distinction between the work of the two associations is only in kind. It is not a distinction that necessitates the employment of different men with different training, belonging to different departments of the railways. Each is engaged in a portion of the work of the mechanical department, with the same men in charge, interested in the subjects discussed in each and bearing their share of the investigations and experiments in both.

It is difficult, therefore, to-day, to justify the continuation of two separate associations on the ground of the difference in their fields of work or the variation in their memberships. The strongest opposition to such a change is in the statement made by Mr. McKenna: "Unless improvement is possible, change should not be favored." Apart from any question of sentiment, it is a serious matter to disturb the successful operation of over forty years. The question for consideration is really whether the attendant advantages are sufficient to justify the change. The most important is the possible saving in time. Under the present arrangements, to attend the first convention means, for the majority of our members, that they must leave home on the Monday or Tuesday night, and, if they stay for the second, they can not return until the Thursday or Friday of the succeeding week. Practically, therefore, attendance at both conventions means that two weeks must be given up to the work, and, under present conditions, this is frequently more than can be spared, important as these conventions are recognized to be.

The attendance of both conventions suffers from this unreasonably spread-out arrangement, especially that of the Master Mechanics. The regulation of the rules of car interchange by the Master Car Builders' Association introduces a business element into its affairs, of an importance that almost necessitates the attendance of the officials in charge of the car departments, apart from any consideration of the value of the technical questions handled in both associations. Apart, however, from any consideration as to which convention suffers most, it may certainly be taken for granted that both are well worth attending and that both associations need the attendance of the men in charge of car and locomotive departments to retain their representative nature and continue their development in the most efficient way. If, therefore, the substitution of one association for the two existing ones can enable this attendance to be obtained, it is certainly a reason in its favor.

The present arrangement takes three days for the Master Car Builders' Association and three for the Master Mechanics', there being two idle days in between. At each meeting the convention is called to order at 10 A. M., and about an hour and a half is occupied in the opening addresses and in the transaction of routine business of the association. On the second and third days the convention meets at 9.30 A. M., and from the third day at noon the election of officers and other closing business usually occupies the time until adjournment. As the convention adjourns each day at 1.30 P. M., the total number of hours occupied by the meetings is twelve, of which about nine are available for the business which the association is organized to transact.

It would be entirely feasible to provide the time thus required by the two associations in the case of one association meeting at 10 A. M. on the Monday, and 9.30 A. M. each succeeding day, adjourning as at present at 1.30 P. M. Allowing, as before, three hours for the opening and closing business and adjourning at 1.30 P. M. on Friday, there would be sixteen and one-half hours available for the transaction of business. If not sufficient, the election of officers, etc., could be held on the Saturday, or, as would probably be considered preferable, meetings could be held on one or two afternoons during the week, which would certainly afford ample time for any work which may reasonably be expected. There is no objection to one or two afternoon sessions, especially in an association discussing both car and locomotive subjects, but the fact that both classes of subjects are being handled in one convention would in itself save a certain amount of time, as the discussion of the same or similar subjects in two separate conventions would be done away with. It may be stated, therefore, definitely, that one association, by the reduction in time required for opening and closing exercises and routine business, would enable a convention to be conveniently held during one week that would afford as much time for the transaction of business as the two conventions do at present. This would enable the members in the majority of cases to attend the entire convention with an absence from their homes of not over one week, thus effecting a considerable economy in the time required by busy men in attending a meeting of importance to them and correspondingly insuring a more representative attendance.

The existence of one executive committee in place of two would reduce the demands on the time of the men engaged in carrying on the business of the associations, and would facilitate the work of selecting subjects for investigation by committees and the names of the members composing them. Under present conditions, it is practically necessary to hold the meetings of the two executive committees either jointly or in communication with each other, both for this purpose and for business connected with the carrying out of the convention arrangements. One executive committee would be more efficient in handling any matters connected with both car and locomotive departments than are two, and, if selected from various sections of the country, would form a strong and representative body for any work in which their services might be of use.

The discussion of similar subjects in two associations would be done away with. Apart from the committees on Consolidation and Arrangements, there are to-day three subjects, Safety Appliances, Lumber Specifications and Train Brake and Signal Equipment, which are being investigated by committees from both associations. In two cases the membership of the committees is practically the same, a recognition by the executive committees of the desirability of reducing as much as possible the time demanded from our members in carrying on this work. There are other subjects on which committees have been appointed on which joint action would logically be required, were it not for the recognition of the unnecessary work involved in considering the same subject in both conventions. Those referred to are: the Revision of Standards, Brake Shoe Tests, Coupler and Draft Equipment, Car Wheels, Train Pipe and Connections for Steam Heat, Mounting Pressures for Various Wheels and Axles, Widening Gauge on Curves, Steel Tires, all of which might be classified as subjects for joint investigation from the fact that decisions reached by one association will practically be adopted by the other. Subjects on which joint action is required will probably increase in number rather than decrease. The time has largely passed when one practice obtained in the car and another in the locomotive department unless there is a good and valid reason for the difference. The agreement on a uniform practice, if possible, or the acceptance of a reason for divergence, can be far better discussed in one association than in two, apart from the saving in the time of the

members of the committees, the duplication of reports and experiments.

In a joint convention the time allotted to the various subjects could be better allotted than when the two are separate. The work in each varies from year to year, and, while, no doubt, it has a tendency to increase, there is sometimes a question whether the investigation of a subject is not carried out in order to arouse interest in the convention, rather than on account of its pressing necessity. With one executive committee the subjects could be determined on with less reference to the time at disposal and with more consideration to their relative importance. It would also be possible and advantageous to avoid the tendency to hurry the discussion on what may have proved to be a more important and contentious subject than was anticipated, which now frequently occurs in order to enable the program to be completed on time. With double the time at their disposal, the meeting could give each subject the attention it requires, and gain on a subject which did not develop the expected discussion the additional time occupied on one which exceeded expectations.

The committee was not instructed to draw any conclusions as to the desirability or otherwise of forming a new association, and has intended to present the arguments for and against that course. It was also instructed to prepare a constitution for a new association, and considers that one modeled after that adopted by the Master Car Builders' Association last year, with certain modifications to render it applicable to a joint association, would be most suitable. It is appended herewith.

ARTICLE I.

NAME.

SECTION 1. The name of the Association shall be "The American Railway Mechanical Association."

ARTICLE II.

OBJECTS AND LIMITS OF ACTION.

SECTION 1. The objects of this Association shall be the advancement of knowledge concerning the construction, maintenance and service of cars, locomotives and other railway mechanical appliances, by investigations through committees and discussions in convention, and the exchange of information. To provide an organization through which the members, and the companies they represent, may agree upon such joint action as may be required to bring about uniformity and interchangeability of railway equipment. To improve the construction and to adjust the mutual interest growing out of the interchange and repair of railway equipment entrusted to their care.

SEC. 2. The action of the Association shall have only a recommendatory character, and shall not be binding upon any of its members or the companies represented in it.

SEC. 3. Subjects involving legal, transportation, permanent way or traffic questions, or for any other reason requiring such action, may be submitted as recommendations to the American Railway Association.

ARTICLE III.

MEMBERSHIP.

SECTION 1. There shall be four classes of members—Active, Representative, Associate and Life Members. Each member must sign the Constitution or authorize the Secretary to sign for him.

Active members are entitled to one vote on all questions. A person eligible as an active member may become such on the approval of his application by the Executive Committee and the payment of one year's dues. Unless dropped from the Association, his membership shall continue until his written resignation is received by the Secretary.

SEC. 2. The following persons are eligible as active members:

Any person employed by a railway company, or railway companies jointly, having charge of the design, construction or maintenance of the railway equipment thereof, or their direct assistants, or holding a position equivalent to that of Master Mechanics or Divisional Master Mechanics, Master Car Builders or Divisional Master Car Builders, or Superintendent of Car or Locomotive Shops. One person from a company owning or operating 1,000 cars or over, which are not in process of purchase by other parties and having charge of the designing, construction and maintenance of the car equipment thereof.

SEC. 3. Two active members in the employ of a railway company and one active member in the employ of a company other than a railway company may be named to represent such railway or other company by appointment by letter from the President, Vice-President, General Manager or General Superintendent. Such members shall be known as representative members and shall on all measures affecting the interests of the companies represented, which the majority of the Association decide shall be determined on the basis of the cars or locomotives represented, have one vote for each 1,000 cars or 100 locomotives they are authorized to represent.

Provided, that no member shall represent more than one railway or system of railways and that the number of cars or locomotives they are authorized to represent must be specified in their letter of appointment, and must be owned or in use or in progress of construction by the companies represented.

In the enumeration of cars, four axles to count as one car.

SEC. 4. Engineers or other persons having such knowledge of science, or experience in matters pertaining to the construction of railway rolling stock as would be of especial value to the Association or railway companies, may be proposed as associate members by three members not associates. The names of such candidates shall then be referred to the Executive Committee, which shall report to the Association on their fitness for such membership. They shall be elected by written or printed ballot at any regular meeting of the Association, held not less than six months after a candidate has been proposed, and five dissenting votes shall reject. The number of associate members shall not exceed fifty. Associate members shall be entitled to all the privileges of active members, excepting that of voting and being elected to office in the Association.

SEC. 5. Any person who has been for twenty years an active or representative member in good standing of this Association, the Master Car Builders' Association or the American Railway Master Mechanics' Association, or who has served as President of either of these Associations, may become a candidate for life membership on the recommendation of the Executive Committee. The name of such member shall be referred to the Association in convention, for election by written or printed ballot, at any regular meeting of the Association, and five dissenting votes shall reject.

SEC. 6. Any member may be dropped from membership for cause prejudicial to the interests of the Association by a vote of three fourths of all the members of the Executive Committee; provided, that written notice of the charges preferred against him shall have been given him at least two months prior to such action.

EDITOR'S NOTE: The remaining Articles and the By-Laws are practically the same as adopted by the Master Car Builders' Association except for an addition to Article IX and a slight change in the time of opening the morning session. The addition to Article IX reads as follows:

"Propositions recommending the adoption or modification of the Standards or Recommended Practice of the Association, or entailing the expenditure of over $1,000 of the funds of the Association, must be determined by a vote on the basis of the cars or locomotives represented."

The By-Law referring to the hours of session is:

"The regular hours of session shall be from 9.30 A. M. to 12.30 P. M., and from 2 P. M. until 4 P. M. The morning sessions of the Association may be prolonged to 1.30 P. M., and the afternoon sessions omitted by vote of the majority present, or the afternoon sessions of the second or other days of the convention, by resolution, may be made an executive session for the consideration of special subjects, but due notice of such proposed action must be given on the day previous."

The report is signed by:—D. F. Crawford (Penn. Lines), H. H. Vaughan (Can. Pac.), and G. W. Wildin (N. Y., N. H. & H.) for the American Railway Master Mechanics' Association, and by:—F. H. Clark (C. B. & Q.), W. A. Nettleton (Rock Island), and C. A. Schroyer (C. & N. W.) for the Master Car Builders' Association.

DISCUSSION ON CONSOLIDATION.

F. F. Gaines: I move that the report be accepted and referred to letter ballot.

C. E. Fuller: I second the motion.

G. W. Wildin (N. Y. N. H. & H.): I rise to a point of order on that motion It is out of order. You cannot refer this matter to a letter ballot. This question affects every member of the association, and not only the representative membership which is entitled to a vote on the question by letter ballot. If you refer this to letter ballot the majority of the members could not vote on the subject.

F. F. Gaines (Cent. of Ga.): I amend my motion that we accept the report of the committee, and further move that we act on the report of the committee and consolidate the two associations.

Mr. Wildin: I think, as stated in the report, that this matter requires consideration, and there should be more thought given to the matter. I also think we should have an expression of opinion from the members present to-day as to their attitude in the matter. Therefore, I move that it be the sense of this association that a consolidation take place and that the matter be referred to the executive committee for their final disposition and report at some future date.

C. A. Seley (C. R. I. & P.): I believe it is stated in the constitution that both of the associations, on any matter affecting a constitutional change, are to have six months' notice. That ought to be considered in this case. I agree with the ballot idea, but believe we should have an individual ballot. I believe every member of this association, whether able to attend this convention or not, or any convention, has a right to an authoritative expression as a member of this association on this question, and I was hopeful that Mr. Gaines, in amending his letter ballot motion, would make that an individual motion.

Mr. Gaines: If I may be allowed to make a further amendment, I suggest that the matter be referred, not to letter ballot, but to each individual member, not on the basis of representation. That will give every one who is a member of the association a chance to have a vote. If it is referred to the executive committee, as Mr. Wildin suggests, I do not see how the individual members will be given an opportunity to vote on the question.

Mr. Wildin: I did not expect to see this matter rushed through at the present time, but we could easily tell whether it is necessary to refer the matter to letter ballot, or individual ballot, if you put the motion to vote, as an expression of opinion. I believe the members who are both for and against this proposition are very well represented here, and I believe we ought to have an expression of opinion from this meeting.

The President: I do not think we are in a position to decide without some further discussion on this matter as to the merits and objections to this plan, whether we want to put it through or not. Neither do I think that we are in a position at present to settle the matter of letter ballot. The constitution of the Master Car Builders' Association provides that the constitution may be amended at any regular meeting by a two-thirds vote of the members present, provided that written notice of the proposed amendment has been given at a previous meeting, at least six months before. The report of the committee constitutes the notice required by the constitution, but it has not been presented to the association at a period six months in advance of this meeting. Consequently I do not see how it is possible for us to take action now, which would settle the matter one way or the other. It is something, I think, which will have to go over for a year, unless someone finds a way out of it, and perhaps the best use we could make of our time at present would be to consider the entire matter, and determine, if possible, how we can handle it in such a way as to take action next year, if it seems that such action is desirable.

F. W. Brazier (N. Y. Cent.): I purposely have kept my seat and refrained from discussing this question thinking that some of the members would take a little more interest in the matter. The association has honored me in the past and elected me as its president. I feel the honor very deeply. I do not believe, to-day, we are ready to take a snap judgment on this. I was going to move that the report be accepted and laid on the table for one year, to give us time to think it over and talk it over. We are too much like people in politics, finding fault with the men they elect, while they never attend a primary to select the right man. Now, let us not go too fast on this. I advocated it at one time. Conditions are changing all the time, and I do not believe to-day that I really am clear as to whether we want to consolidate or not. I think possibly it is going to be the right thing, but let us take time to consider it. I see no harm in accepting the committee's report and letting it lie on the table for another year. I so move.

Mr. Schroyer: In explanation of my seconding that motion, as an approval of the same, I want to say to you that it occurs to me right here that if this consolidation is effected and the attendance of these meetings is increased to the extent that it necessarily will be by that consolidation, you will have a difficult time finding a place to meet. That is one of the thoughts that comes to me. This room is now filled and has been filled at every session of this association. Suppose there were three or four hundred more members here, while it may be true that we could get a room big enough to meet in, what are you going to do about hotels? I think we will overreach ourselves. Another thing: what are you going to do about attending these meetings, two long sessions a day, for four or five days of the week? These manufacturers come here with their exhibits and display the modern machinery, improvements on the old, modern appliances of all kinds, which affords us the very best opportunity we can have to see these appliances combined in such a way that we can get beneficial knowledge in a short time—if you consolidate these associations, we will leave home on Saturday and will return home on Monday, and will have to do a lot of hard work in the meantime. So that I think there are many things to be considered in this connection, and it would be a very wise thing to allow this report to lie over for a year. (Applause.)

A. E. Manchester (C. M. & St. P.): The applause that Mr. Schroyer received is in line with my thoughts, that every member of this association who is not a member of the Master Mechanics' Association will not be in favor of the consolidation. I believe they have good and just reasons for feeling that way. The heads of the railroads rarely come from the car departments. They are either from the locomotive or the engineering departments of the roads, and the thought occurs to me that with that as a fact, there will be a danger of the Master Mechanics' Association finally predominating. I believe it would be a bad thing to have it that way. If there has been effective work done by either of the two associations, we are all, I think, agreed that the most effective work has been done by the car association. I fear that any movement that consolidated the two would have a tendency to weaken the car association, and not materially strengthen the Master Mechanics'. (Applause.)

George L. Fowler: Some years ago there was a paper read before one of the railroad clubs that was a little tiresome, and Mr. Forney, in discussing it afterward, said he had often heard of the fact that if you strained a piece of metal beyond a certain point, you would exceed its limit of elasticity, and it would very soon break. It seems to me as though, if the work of these two conventions were to be compressed into one week, the condition of the members at the end of that week would be very much like that of a piece of metal that had been strained beyond its limit of elasticity, and that the work it was doing on the last two or three days would not be as efficient as it would be if they had a recess in between. We find, in teaching school, that it is necessary to give children a recess in the middle of the day, and it seems to me quite reasonable that an audience, even so vigorous as this, would have to have a recess in between three or four days of such hard work as comes in these conventions. You put the convention on the floor here at nine o'clock in the morning, keep it in session until half-past twelve, then pick it up and do the same thing again in the afternoon, and by the end of the third day you have a tired lot of men that are doing just about as efficient work as your fireman would do after being out on a 150-mile run firing a big engine without assistance. They cannot do the work properly.

Then, there is another point. It has been a matter of universal concession, time out of mind, ever since these conventions were organized, that the discussion among members in between the sessions is of as much benefit personally and individually, and, in fact, of as much value to their railroads, as anything which they get from the conventions themselves. If you take up all the time in the conventions, as will be necessary in order to get through in a week, you cut out that outside discussion and members do not have a chance to get acquainted with one another socially or in a business way, as they will if they have a little more time to themselves.

And, finally, the point that Mr. Schroyer brought out, the fact that these magnificent exhibits are placed here on the pier—it seems to me it is very doubtful whether the manufacturers would go to the expense that they do now, running up into the thousands of dollars every year, to bring these exhibits down here, to show the latest things that have been developed, if their exhibits had to be opened on Monday morning and closed practically on Thursday night; because we all know that although this convention closes formally on Friday noon, the last morning amounts to nothing so far as the manufacturers are concerned.

In view of those three points alone, that an audience simply cannot be got together and kept standing up to the performance of this kind of work for four or five consecutive days; that the members will not have a chance to become acquainted with one another, which the conventions are the most valuable means in the country to bring about, and that the manufacturers will not be able to bring their exhibits together—in view of those considerations, the subject ought to be very carefully considered before we get together and try to effect the impossible. (Applause.)

W. A. Nettleton (C. R. I. & P.): As a member of the committee of your association, I have been asked a great many times my opinion on this matter, and I have talked with a great many people. I cannot find, really, that there is any consensus of opinion on the matter. The principal argu-

ments seem to be the saving of time and the saving of expense, and I do not see how we can act on this thing precipitately, because we do not know whether the young lady is going to like us or not. I should say that if we do get together and try to save time, it should be something in the nature of a trial marriage, a committee appointed by both associations to see whether the duplicate subjects could be cut out, or something along that line..

J. F. DeVoy (C. M. & St. P.): I have looked at this matter for a considerable period at an angle altogether different from that at which almost anyone else has looked at it. You never can convince me for a minute that a truck horse could have the ability to win a derby race. If you have appendicitis, you are not going to send for a horse doctor. The art of car-building must be given more attention by men who know car-building. A purely technical man never was fitted in God's world to build a car. It requires ten or twenty years for him to be able, even in a measure, to attempt to build cars. The average high-class technical man will absolutely put one hundred dollars where ten cents would do the business. I do not think anybody is willing to question me in this, because I start at altogether a different angle. This distribution of steam, valve motion and all that thing, is a scientific study which requires a specialist, and a man that knows the distribution of steam may not know anything more about the strains on the centre sills of a car or draft gear than a mule does. I know just what I am talking about. It is getting to be pretty nearly impossible to get a man that can even lay down the clearances for a car. They will run a pipe through the wheels if they can get it through there. This argument that the supply men should have a show to exhibit hasn't anything to do with it.

W. F. Bentley (B. & O.): I think this matter is one that is deserving of serious consideration. If the railroad companies are to be benefited by consolidation, the change certainly ought to be made. The saving of money for the railroad companies is what the members of this association, I believe, as well as the Master Mechanics' Association, come here for. If by placing additional burdens on the Master Mechanics' Association, giving them additional duties while they are here, they can accomplish the work and do it properly in the same time, they certainly ought to be given the opportunity to do it. It certainly should be a saving in money to the railroad companies from that point of view. Assuming that the Master Mechanics' Association has not sufficient time, and the subjects brought before it are worthy of greater consideration, I imagine that it could not do the additional work that has been done by the car department people, with their assistance, in the same amount of time. There is a point that occurred to me that was brought out in the report, that it seemed might serve both associations to good advantage if considered. The point is that there seems to be a lack of understanding between the two executive committees, and therefore they appoint committees to investigate the same subjects. Possibly a conference between the two from time to time might result in good to both, when the subjects are being selected. I do not think any sentiment should enter into the matter of consolidation, but I believe that the motion Mr. Schroyer has made, that the matter be held over for another year, and be given further consideration, is a good one. It would seem fair, too, that the individual members should be given a vote on the matter at that time, if it is considered by the officials of the railroads represented that they are competent to vote. I assume that by reason of their having become members of the association, with the consent of the railroads, they would, in the majority of cases, at any rate, be considered competent to vote and to pass judgment. I do not think that the railroad companies would want to consolidate simply as a matter of sentiment, but as a matter of dollars and cents. If they can advance ideas and perfect constructions by a consolidation and better conditions in general throughout the country, I think it would be their intention to do so; and I think whether a man is a member of this association or the Master Mechanics' Association, he should, after giving the thing proper consideration, give his vote in the way he thinks the interests of the railroad companies would be best promoted.

J. J. Hennessey (C. M. & St. P.): In the principal line of thought that has been given expression, the only good reason that I have heard advanced for the consolidation of the two associations is the saving of time. I have tried to figure out how much time would be saved. Practically about all the time that can be saved is the time taken up by the presidents' addresses, and the organization of the two associations. I do not know whether an hour or an hour and a half on an important subject like this is worth considering. Both the Master Mechanics' Association and the Master Car Builders' Association have made a record. They have accomplished a great deal of good in their own lines, and I question very much whether we are going to get, by consolidating, as good results in the car department as we are getting to-day. When it comes down to dollars and cents, it is the car department that spends the railroad's money. There will be another tendency, possibly, if the two associations are consolidated, and that is, to make a great many of the younger members in the Master Car Builders' Association become indifferent. The crying need to-day in this country is to interest more young men in the car department. I believe I voice the sentiment of nearly every man of experience in this hall, when I say it is almost impossible to-day to select young men that have the proper training, so that you can give them charge of a large shop in a car department. Why? For the reason that for years the opportunities for young men to come in and learn the car trade have not been as good as they have been in the locomotive department. By the time one apprentice gets through his time, his salary is far above the salary of the apprentice in the car department. The result has been that the brightest young men have drifted into other departments, and the car department to-day is really at a loss for the proper material to conduct its business as it should be conducted. I believe any movement looking to the consolidation of the two associations is going to be a still further drawback to the department that spends more money than any other department of the railroad business.

G. W. Wildin: It seems to be the burden of the argument which we have heard that someone is going to lose money by consolidation. I do not see that we are going to wipe the car men off the face of the earth, nor exalt the locomotive men. What we are trying to do is to get a first-class railway mechanical association that will embody in its membership all men who care to take part in it, without fear or favor to any.

With regard to the question of a man not knowing anything about cars because his principal work is with the locomotives, it is quite evident that Mr. DeVoy has not read the report of the committee very carefully, and the other committee reports presented at the meeting, or he would see that about 95 per cent of the committee men in the M. C. B. Association are really locomotive men and have never had any experience with car matters. If you select such men for committee men it is because they are capable of doing the work which is required of them. Take, for instance, the committee on Air Brakes and the committee on Train Brake Signal Equipment, and you have not a single car man on these committees doing the work of the association here; not a single car man, and I do not think you would find much better committee men than are on these committees if you look the entire car departments over. Take the committee on Brakeshoe Tests, what car man is there on that committee? Take the committees on Coupler and Draft Gear. You have two men, one connected with a private car line, yet they do not have any motive power man, and the other member is with a railroad company. Take your committee on Rules for Loading Material. You have one car man on that. Take the committee on Car Wheels, you have one car man on that. Take the committee on Safety Appliances, you have two car men on that—two car men out of seven members. It is evident that the executive committee of this association is either mistaken in selecting committee men, or some people are mistaken in their ideas of what constitutes a proper man to handle the work of these committees.

Now, there are other things besides the mere matter of wiping out the two associations. I am for consolidation, and I do not think that either association is going to lose anything. I think we should go further, although we did not think it quite proper to put these suggestions in the committee's reports. I think there are other associations that should be dealt with in this connection, and should be consolidated. There is no reason that I can see why, in the consolidation of the M. C. B. and M. M. Associations, we should not include the Traveling Engineers' Association and the Air-Brake Association. Each of these associations has a committee engaged in air-brake work. There is only one body that can do air-brake work and do it properly, and that is the Air-brake Association, and that association ought to be a part of this proposed consolidated association. It should be a part of us, so that what work it does will have some weight. If it is endorsed by this association, it will have weight. As it is now, it formulates policies and practices, and each man goes home to his superintendent of motive power and tries to put these policies and practices into operation, and the matter has no weight whatever. The committees of that association are doing good work. The Traveling Engineers' Association have a Committee on Air-Brakes. That is also a good working committee, the Traveling Engineers' Association is a good working association, and it ought to be a

part of this association in order to enable it to do its work most effectively. Then we have a General Foremen's Association, which has more to do with shop practices than any other organization—the superintendents of motive power are not in touch with them. They have a separate association, and in order to secure the greatest value from the work of that association, it ought to be a part of this association. We have associations all over the country that should be in this General Mechanical Association, and I believe it is only a matter of sentiment that keeps us from consolidating all of these associations. There is nothing to be lost by such a consolidation, and it will have to be made eventually. Every one of these other associations can give its actions no force without our endorsement, and if we endorse their work it will go into action. If they are a part of the new organization, the result would be that we would have more uniform and general practice.

Mr. Schroyer: I call for a point of order on this question. We are all out of order. We are not talking to the question —the question is, whether this report should be laid over for a year.

The President: The point of order is well taken. The chair has allowed this discussion to run along, because he thought it was desirable to get the expression of the members on the question. If there are two or three other members who have something to say, and you will permit the discussion to proceed, I think perhaps it had better be done.

H. H. Vaughan (C. P.): As a member of the committee of the Master Mechanics' Association on this subject, I would like to say that we thoroughly agree with the remarks made by Mr. Hennessey; but I do not believe that that point of view is one that affects the present question very seriously. The way we looked at it was that the question of the advisability of offering better lines for promotion to men in the car department was not one that was going to be affected by any action taken by these two associations. The only way we can look at this matter is that the consolidation of the car and locomotive departments under one heading has already been effected on the majority of railroads. The question of the advisability of that consolidation is one that we did not consider; we have to take things as they are and not as we might like them to be.

I am not by any means prepared to advocate the advisability of the consolidation of the car and locomotive departments. I do not think that is the question at issue. The chief question is, whatever our opinions of the matter may be, that on the majority of roads the car and locomotive departments are under the charge of a mechanical officer. They are two different departments, it is true, but they are under one general superintendent. We have to admit, from the facts which exist, that a large majority of the railroad companies have felt that to be the advisable method. It seems to me that the general feeling of a railroad executive is that he wants a mechanical officer to look to for the direction of both car and locomotive matters. He has his operating man on operating matters, his accounting man on accounting matters, a chief engineer on permanent way matters, and the chief executive of a railroad wants his mechanical man on car and locomotive matters; in other words, on most of the railroads of this country a mechanical department has been organized, and the car and locomotive departments have been merged into and combined in it.

I do not want to enter into any discussion of the relative merits of car and locomotive men in handling either car or locomotive matters. The discussion this morning has shown us distinctly that we have one man who is a locomotive man who knows all about car matters. I am sure he is a locomotive man because his title is such, at the same time he has no objection to coming here and taking a keen interest in the matters of the car department. I feel that is our general proposition—that whatever may be the advisability or non-advisability of the course, we have, as a rule, the same men interested in both car and locomotive matters.

Mr. Wildin has called your attention to the fact that we have mostly locomotive men on a great many of the committees of this association. I do not like that way of putting it. I must disagree with Mr. Wildin. I would say that the mechanical department is represented by a large number of men on the committees of the M. C. B. Association, and that a large number of the same men are on the committees of the M. M. Association. I also call your attention to the fact that your presidents and vice-presidents are men equally eligible to be officers of either the M. C. B. Association or the M. M. Association, and to a large extent the same men are interested to-day in both organizations. As Mr. Hennessey said, the car department is the department on the railroad that entails the expenditure of the most money. I do not think there are any railroads concerning which this is not true, and the consequence is that the officer in charge of the mechanical department of the railroad is practically compelled to attend the meetings of the M. C. B. Association on account of the large amount of interest he has in its meetings. He may have been a car man originally, or he may have been a locomotive man originally, through whichever line he has come up. He is obliged to take a deep interest in the convention of the M. C. B. Association because the proceedings of that association affect his road to such a vital extent.

I cannot but feel that the tendency has been for the meetings of the M. M. Association during the past few years to suffer from the fact that mechanical officers have been called upon to attend the M. C. B. Association on account of the importance of the subjects discussed at its meetings, and also on account of the spreading out of the time occupied by these two associations. It has been a quite frequent occurrence that these men have been obliged to go home, after attending the meeting of the M. C. B. Association, and neglect the meeting of the other association.

My feeling very keenly is that the M. M. Association is the one that needs this consolidation more than the M. C. B. Association. The M. C. B. Association has an amount of business interest to the railroads that compels the attendance of the mechanical department officers, while the M. M. Association, being more technical in its character, naturally suffers through the lack of attendance of these representatives and their failure to take the same interest in its proceedings which they take in the proceedings of the other association.

As far as the question of time is concerned, I do not want to paint any picture of how good an association we might have, or how much time would be saved, but I do feel that one association would be stronger and would have certain advantages over two. I do not think we would be straining beyond the breaking point by attending a convention in one week, instead of spreading it over two weeks, or what practically amounts to two weeks. It seems to me, if the associations were consolidated, that the man who is chiefly interested in locomotive subjects would stroll out and have a look at the exhibits while the question of the splicing of sills was being considered in the convention. On the other hand, the car man might not be interested in the question of superheat for the locomotive, and while that subject is being discussed he would have an opportunity to look at the exhibits. I firmly believe that the attendance at the exhibits would be improved by holding the convention within the period of one week.

I do not believe there is any necessity for regarding the report of the committee as final, but really, if you will look at the present convention, you will see that up to noon on the first day, the time was occupied in preliminary business, and there are only three and a half hours available on the last day, so that the time actually available in these conventions for discussing car and locomotive questions is really very limited when you consider the time that is spent by the members in getting to the meetings. The majority of mechanical officers who live, say twenty-four hours from Atlantic City, have got to give up practically two weeks to these conventions if they want to attend both of them. I feel that both conventions are of sufficient importance for us to attend them. We all feel that way, but I am quite sure that some of our executive officers do not feel that way. They think if a man consumes a week in attending these conventions, that is about all the time that should be consumed; and while I do not want to give the impression that the officers of the Canadian Pacific are less willing to allow their men to take two weeks in attending the conventions than any other railroads, I do know they have a slight feeling that if I leave home on Monday and do not return until the second following Friday, I am putting in more time in attending the conventions that seems to be necessary. If I could leave home on Saturday and return on the second following Monday they would feel that that might be reasonably all the time that could be expected to be given to the work, and I cannot help feeling that that same sentiment is shared by the officers of other roads. I think they would like to see these associations handled in such a way that their mechanical officers could attend the meetings and not give up more than one week's time in doing so. Two weeks in a year is four per cent of your total time to attend these mechanical conventions as now conducted.

I would like to speak with regard to Mr. Schroyer's motion for a minute, if I may. When this matter came up, the committee had to consider if a consolidation was deemed desirable, how it could be effected. I regret to say that we were entirely unable to arrive at any decision in that matter. There are a number of legal questions involved, and, as I think you will realize from the motions made this morning, no one has any clear idea as to how this thing could be handled or in what way the vote should be taken.

It is a question in my mind as to whether the vote of the

membership as a whole is constitutional, whether an amendment to the constitution would not have to be introduced to make such a vote effective. I must confess that I do not understand the legal standing of the M. C. B. Association, and I do not know that anybody else does. All these questions will have to be considered. My feeling, personally, is that Mr. Schroyer's motion is an exceedingly wise one, and it is exactly what should be done with this report—action on it should be delayed for a year to give everybody a good chance to think it over and come to some conclusion about it. It is too serious a thing to jump into without proper study. Your committee never desired any such action as would bring the consolidation about rapidly. All we expected was that the matter would be carefully considered, and carried along for a year or two, so that everybody interested could have a full and unlimited opportunity to thresh it over and see whether or not such a thing was desirable.

I believe we should add to Mr. Schroyer's motion, that the matter should be laid over for a year and, also, that it should be referred to the executive committee for further report and consideration, so that the committee may be in position to look up the legal questions concerning which, owing to a good many delays, we were unable to obtain any information. They might also look up the action that could be taken if a consolidation is deemed desirable. I think that is a matter for the executive committee to deal with. We were unable to do it on account of the delays in getting the consensus of opinion of the various members of the executive committee, and there again is an instance of the desirability of one good, strong, executive committee. We took quite a lot of time in securing the consent of the executive committees of the two associations in order to procure authority to secure legal advice in the matter.

F. W. Brazier: As mover of the original motion, I will be only too glad to accept Mr. Vaughan's suggestion, and I want to thank Mr. Vaughan for the clear and concise way in which he stated the matter, without becoming excited. I believe it will do no harm to let the matter lie on the table for another year, and let the committee consider it. I am sure if the officials of the railroads were to attend our meetings and see our exhibition they would not have the opinion that we come here with any other purpose than that of a most serious desire to do the work mapped out for the meetings. All of the railroads of the country get the benefit of the work which we do. On the New York Central lines we are anxious to have our men attend these meetings, and the road gets the benefit of their talents and the knowledge which is secured at these conventions. If a larger number of the higher officials of the roads would attend the conventions occasionally, I am sure that they would have a very high opinion of the value of the work which we perform.

The President: The motion, as modified by Mr. Brazier, is that the subject be laid on the table for another year, that the executive committee of the association be instructed to consider the legal and other aspects necessary to put the matter through, and that the members be given an opportunity to further consider the matter.

The motion was carried.

The Secretary: In your voting for associate and life membership, the associate member proposed is Prof. Endsley, and the life member proposed is Thomas Millen. Inasmuch as there is only one candidate for each form of membership, you can vote, "yes" or "no," no matter whether you put the name of the candidate on the ballot or not.

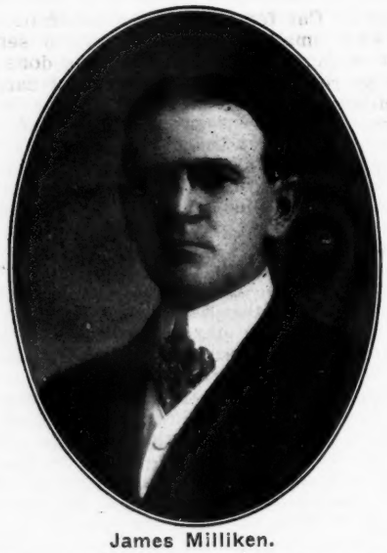
The President: The next business is the report of the committee on Classification of cars, of which James Milliken (P. B. & W.) is chairman.

CLASSIFICATION OF CARS.

At a meeting of the American Railway Association, held April 22, 1908, the folllowing resolution was adopted: "*Resolved*, That the Master Car Builders' Association be requested to take up the question of harmonizing the terms used in designating the different classes of cars and the different kinds of cars in each class, according to their physical characteristics and report its recommendations to this Association for final action."

In the report made by the committee at the 1909 convention it developed that Mr. Hale, of the American Railway Association, had been asked to define more clearly the scope of the resolution, and under date of April 10, 1909, advised as follows: "The question of harmonizing the terms of designating cars was originally brought up by the Association of Transportation and Car Accounting Officers, through the committee on Car Service. The first term which they wanted defined was a 'coal car.' The discussion developed that there was a good deal of difference in the minds of Eastern men as to what was a gondola, and then the question came up as to what was a hopper gondola and whether a hopper gondola was different from the hopper. As time went on the question was asked, 'What was a refrigerator car?' That is, must refrigerator cars have ice boxes; and later the question has been raised, 'What is a postal car?' Also, 'What is a mail car?' and 'What is a tourist sleeper?' The M. C. B. dictionary is rather general in its terms, and it was thought that your Association would be the proper one to give full definitions to all the terms in common use and invent proper terms where the vocabulary is not now sufficient. There are doubtless other undefined terms, and the thought was that a full set of names and definitions would be most desirable."

The committee feels that the American Railway Association desired a classification of cars more from a transportation, than a detail construction, standpoint and, therefore, presents a classification of cars, divided, first, into passenger equipment cars; second, freight equipment cars; third, maintenance of way equipment cars; and these classes, in turn are subdivided into distinctive classes of cars, principally in order to facilitate the work of car distribution and car efficiency. We have not taken into consideration the individual physical characteristics, such as kind of truck, draft gear, or other details of construction of a car, as we understand the principal questions to be answered are "what kind of a car" and "how much will it carry." The rolling equipment of forty-three railroads, operating 117,500 miles of track, and owning, approximately, 1,350,500 cars, has been looked into, and it is found to be impracticable to make a definite classification giving the individual characteristics of the cars that would, in any way, be applicable to the equipment of the various railroads of the United States.



James Milliken.

Chairman, Committee on Classes of Cars.

It would, therefore, seem that the classification should be broad in its interpretation, and confined only to the kind of car of general class and the stenciled capacity of the car. With passenger cars, the kind of car, length and seating capacity should be indicated, and possibly the manner of lighting. In arriving at the proposed classification of cars a single designating letter has been given for the general service of the car and a secondary letter to cover the general type of the car. In arriving at the primary and secondary letters, the attempt has been made, as far as practicable, to use letters which give some indication of the type of the car, or letters that are now generally used. In each subdivision a brief description covering the type of car has been given.

DEFINITIONS AND DESIGNATING LETTERS OF GENERAL SERVICE PASSENGER EQUIPMENT CARS.

CLASS "B."

"BA"—Baggage Car. A car run in passenger service, having wide side doors for the admittance of baggage, with or without windows or end doors.

"BE"—Baggage Express. A car similar to baggage, used for either baggage or express matter.

"BH"—Horse or Horse and Carriage Express. A car run in passenger service for the transporting of fine stock, fitted with stalls (movable or stationary) and space left for carriage or horse equipment.

"BR"—Refrigerator Express. A car run exclusively in passenger service and fitted with ice bunkers or boxes, and suitable to carry produce, oysters, fish or any commodity requiring icing in transit.

"BX"—Express Car. Exclusively for express matter, having suitable side doors, with or without end doors or windows.

CLASS "C."

"CA"—Combined Car, Baggage and Passenger. A car having two compartments, one suitable for transporting baggage, the other fitted with seats for passengers, the two compartments separated by bulkheads.

"CS"—Combined Smoking and Baggage Car (Club Car). A car having two compartments, separated by bulkheads, one compartment suitable for transporting baggage, the other fitted with seats or chairs and used as smoking car; at times equipped with buffet or bar.

"CO"—Combined car having three separate compartments, separated by bulkheads, one compartment suitable for transporting baggage, one for mail fitted with suitable apparatus for sorting and classifying it, and the other fitted with seats for the transportation of passengers.

"CB"—Business Car. A special type of car for the convenience of business men, used as smoker and fitted with tables or desks, carrying stationery and fitted with typewriters and carrying regular stenographers.

CLASS "D."

"DA"—Dining Car. Regular dining car, for the use of passengers in transit, fitted with regular kitchen, tables, chairs or seats, with or without bar, carrying cooks and waiters.

"DB"—Buffet Car. Car for the transportation of passengers and fitted with small broiler or buffet to serve simple meals to passengers; cooking and serving done on removable tables by regular porter in charge of car. With or without facilities for serving liquor.

"DC"—Café Car. A car fitted with kitchen, usually in center of car, one end used as café where meals are served, liquor and smoking allowed, the other end of car fitted with either regular dining room or smoking and card room; carrying cooks and waiters.

"DG"—Grill Room Car. Very similar to café car.

"DO"—Café Observation Car. Car fitted with café at one end, kitchen in center or extreme end, having observation compartment fitted with stationary or movable tables and observation platform at rear.

"DP"—Dining and Parlor Car. A car fitted with dining compartment, kitchen and compartment for passengers, fitted with chairs, stationary or otherwise, carrying regular cooks and waiters.

CLASS "E."

"EA"—Electric Street Railway Service Car, direct current, for transportation of passengers; without automatic couplings.

"EP"—Electric Passenger Car, for long hauls or suburban service, multiple unit and fitted with automatic couplings and air brakes. Third rail, trolley or pantagraph contact.

"EB"—Electric Baggage Car, for long hauls or suburban service, multiple unit with automatic couplings and air brakes and suitable for the transportation of baggage. Third rail, trolley or pantagraph contact.

"EM"—Electric Mail Car, for use in United States Mail Service, fitted with side doors, with or without mail hook, and suitable apparatus for the sorting and classifying of mail en route. With or without end doors or windows.

"EC"—Electric Combined. A car for long hauls or suburban service, multiple unit with automatic couplings and air brakes. This car is made up of two compartments, separated by bulkhead, one suitable for the transportation of baggage and the other fitted with seats or chairs for the use of passengers. Third rail, trolley or pantagraph contact.

"EG"—Gasoline Motor Propelled Car, for inspection or private use, or use in suburban service, hauling one or more trailers.

"ED"—Gasoline Motor Car. Gasoline engine or engine serving to run dynamo to furnish electricity for axle motors. Car to be used for inspection, private use, or as motive power to haul trailer or trailers; fitted with storage cells and with or without booster.

CLASS "M."

"MA"—Postal Car. For use of United States Mail Service, fitted with side doors, with or without mail-bag hook, and having suitable apparatus for the sorting and classifying of mail in transit, with or without end doors or windows.

"MB"—Baggage and Mail. A car having two compartments, one for baggage and one for mail, separated by bulkheads; the mail end fitted with suitable apparatus for sorting and classifying mail, and with or without mail-bag catchers, with or without end doors or windows, and having suitable side doors.

"MP"—Postal Car. Suitable for transporting newspapers or large mail packages for United States Mail Service, having side doors and fitted with stanchions, with or without end doors or windows.

"MR"—Postal Storage Cars. For United States Mail Service, suitable for carrying mail in bulk, without appliances for sorting or classifying, fitted with side doors and stanchions and with or without end doors or windows.

"MS"—Mail and Smoker. A combined car having two separate compartments, separated by bulkheads, one compartment suitable for the transportation, sorting and classifying of mail, the other fitted with seats or chairs to be used by passengers as smoking car.

CLASS "P."

"PA"—Passenger Car. A car for ordinary short haul suburban service, with seats and open platforms.

"PB"—Passenger Car. A vestibule (wide or narrow) car for through service, fitted with seats or reclining seats, and having toilet rooms for men and women, also wash basins.

"PE"—Emigrant or Colonist Car. A second-class passenger car, with floors either bare or fitted with matting, used expressly for emigrant trade on trains where low rate of fare is charged.

"PS"—Sleeping Car. A car for passenger service having seats that can be made up into berths, and usually having one or more separate stateroom compartments, also toilet and washroom facilities for men and women, and smoking compartment for men. Some cars of this class are all compartments, and some compartment and observation combined.

"PN"—Passenger car used exclusively as smoking car, with seats or chairs and fitted with cuspidors or having matting or bare floor.

"PO"—Observation Car. A car having an observation compartment at one end and fitted with either berth facilities, parlor chairs or compartments, usually run in first-class service.

"PV"—Private cars used as officers' or private individuals' car and railroad pay car—usually composed of sleeping compartments, dining compartments, observation end and with kitchen, servants' quarters and toilet and bathroom.

"PT"—Tourist Car. A second-class sleeping-car, fitted usually with cane seats convertible into berths and used mostly on trans-continental trains; cars fitted with smoking compartment, toilet and washroom.

"PC"—Passenger, Parlor or Chair Car. A car fitted with individual stationary or movable chairs, used on trains for daylight runs and having toilet and washrooms.

CLASS "I."

"IA"—Instruction Cars for use of employees, usually run from one point to another in passenger trains.

NOTE.—If it is so desired, a small letter "E" can be placed after the larger designating letters to indicate electric lighting, and small "G" for gas lighting, also figures showing approximate length of car or length of baggage or mail compartment.

GENERAL SERVICE FREIGHT EQUIPMENT CARS.

CLASS "X."

"XM"—Box Car. General service, suitable to lading which should be kept from the weather. A box car is a closed car having side and end housings and roof, with doors in sides or sides and ends.

"XA"—Automobile Car. Box car of similar design to general service car, having exceptionally large side doors or end doors.

"XF"—Furniture Car. Box car of similar design to general service car, except usually greater capacity in cubic feet.

"XV"—Box Car, Ventilated. Similar to ordinary box, only having ventilation, and suitable for the transportation of produce or other foodstuffs not needing refrigeration.

CLASS "R."

"RM"—Refrigerator or Produce Car. A car suitable for carrying commodities that need icing in transit. This car is equipped with two or more ice bunkers or baskets and suitable means of draining off melted ice or briny water. This car has side and end housings, roof and side doors, usually insulated, with trap doors in roof for admittance of ice and salt; also water seals inside of car.

CLASS "S."

"SM"—Stock Car. This car is for transportation of stock on the hoof, and is equipped with roof, slatted sides and side doors, and single or double deck. With or without feed or feed and water troughs.

"SD"—Stock Car. Composite having drop doors in floor and means of housing in sides and making drop-bottom box car.

"SP"—Stock Car. Used in poultry trade, fitted with roofs and sides usually of wire netting, fitted with shelves for storing crates of poultry and leaving space for poultrymen, feed bag and watering facilities.

CLASS "G."

"GA"—Gondola Car. This car has sides and ends open at top, and drop bottom; suitable for general coal or ore trade, stone or general trade.

"GE"—Gondola car having drop bottoms and drop sills; suitable for general coal or ore or mill trade.

"GC"—Gondola Coke Car. Gondola car fitted with coke racks and having drop bottoms.

"GD"—Gondola car having side-dump arrangement.

"GM"—Gondola Car. Suited to mill trade, having solid bottom, low sides and drop ends to facilitate twin shipments.

CLASS "H."

"HM"—Hopper Car. Similar in general design to gondola car, having sides and bottom ends and open at top, equipped with hopper bottom and self-cleaning.

"HT"—Hopper (Twin). Similar to ordinary hopper, only equipped with two or more hopper doors instead of one.

"HD"—Hopper car equipped with side-dump hoppers.

"HC"—Hopper car equipped with coke racks.

CLASS "F."

"FM"—Ordinary flat car for general service. This car has flooring laid over sills and without sides or ends.

"FG"—Flat or gun truck car for special transportation of heavy ordnance.

"FW"—Flat well-hole car for special transportation of plate glass, etc. This car is a flat car with hole in middle to enable lading to be dropped down on account of clearance limits.

"FB"—Flat car having skeleton superstructure, suitable for carrying barrels, known as "Barrel Rack Car."

"FL"—Flat logging car or logging truck. This is either an ordinary flat car, or car consisting of two trucks fitted with cross supports over truck bolsters; the trucks connected by a skeleton of flexible frame and logs loaded lengthwise on cross supports.

CLASS "T."

"TM"—Tank car for general service. This car is for general oil or liquid service, and consists of a steel tank mounted on a frame or mounted directly on cradles over truck bolsters. It is equipped with one or two safety release valves, and is emptied by valves or valve at bottom. At the top is a dome, with or without manhole, and openings through which the tank may be filled.

"TA"—Acid Tank. Of same general construction as oil tanks.

"TG"—Tank car having glass or glass-lined tanks, for use in hauling mineral waters and other special products.

"TS"—Tanks for special commercial service.

"TW"—Tank car having wooden tank, instead of steel, and used for water, pickles, etc.

CLASS "N."

"NM"—Freight train service caboose for convenience of trainmen. This caboose is mounted on four wheels and has lookout at top over roof. It is fitted with bunks or benches and a stove for cooking and heating purposes, also tank for storage of drinking and washing water, and small tool storage boxes.

"NE"—Caboose mounted on eight wheels and longer than four-wheel caboose, but of the same general design.

CLASS "Y."

"YM"—Yard Poling Car. This car is used in hump classification and flatyard classification. It is usually fitted with a small house or protection and benches, tool box and stove, a counterweighted pole on each side and running board or step near the ground for convenience of yardmen. It is protected with safety appliances and, when in use, is coupled to an engine.

"YA"—Yard pick-up car for use of car droppers and yardmen in performance of their duty. It might be termed a "Car Dropper's Car." It is protected by a house, around which runs a platform and railing, a long running board on sides near ground and is fitted with benches, tool box and stove.

NOTE.—The capacity of car can be shown by affixing two figures after designating letter: for instance, "80" would mean 80,000 pounds capacity; "10" would mean 100,000 pounds capacity; "60" would mean 60,000 pounds capacity. Where tanks are in question the capacity numbers should indicate capacity in gallons instead of pounds.

GENERAL SERVICE MAINTENANCE OF WAY EQUIPMENT CARS.

"MWB"—Ballast Cars. All descriptions of cars used for the purpose of carrying ballast for the laying of new right of way and repairs. The car used generally for this work is of the gondola type, with side or center dump.

"MWD"—Dump Cars. The type of contractors' car used for building up fills; the body of the car dumps, being raised by means of a counterweight, air or hand power.

"MWF"—Flat Car. Used for transporting rails, ties or ballast and for storage of wrecking trucks, or gathering scrap along right of way. These cars are at times equipped with low sides, about 10 or 12 inches high.

"MWS"—Steam Shovel. Car equipped with donkey engine housed in. Having a boom of wood or steel at the end of which is a shovel or scoop. It may be propelled by its own power or by means of a locomotive and run as a car in freight trains, being equipped with safety appliances. The cubic capacity of shovels, in yards, can be indicated by figures after classification letters.

"MWW"—Wrecking Derrick. A derrick used for wrecking purposes, having donkey engine to raise and lower booms and hoists; engine is housed in and on separate platform with boom and is pivoted in center of car frame in order that it can be worked on either sides or ends; usually fitted with anchor beams to be used for heavy lifting. Fitted with safety appliances and propelled by means of a locomotive. Lifting capacity in tons shown by means of figures.

"MWU"—Wrecking Derrick. This derrick has boom and hoist fitted to frame of flat car and lifting is done by means of hand power; propelled by locomotive.

"MWV"—Wrecking Derrick. This derrick has boom and hoist fitted to flat car and a drum at one end to furnish means of hoisting; steam furnished to donkey engine by means of flexible steam line from attached locomotive; propelled by locomotive.

"MWT"—Tool and Block Car. A car used for carrying all descriptions of tool equipment and blocking. This car has side and end housings and roof, also end platforms. There are doors in sides and ends and usually windows. It is fitted inside with proper racks and boxes for storage of tools.

"MWC"—Caboose and Tool Car. Similar to tool car, but having one end fitted up as a caboose, with bunks, stove and water storage, with or without lookout, and is used in either work or wrecking trains.

"MWH"—Hand Car. This car is flat and mounted on four wheels and propelled by means of pushing; it is known as "Push Car."

"MWL"—Hand Car. This is a small flat car, with or without seats, mounted on four wheels and propelled by means of cranks or hand levers.

"MWG"—Section Gang or Track Inspection Car. Flat car, with or without seats or tool boxes, and equipped with single or double cylinder gasoline engine serving as motive power.

The report is signed by:—J. Milliken (P. B. & W.), chairman; F. M. Whyte (N. Y. C. Lines), and J. N. Mowery (Lehigh).

DISCUSSION.

Mr. Milliken: Since the report has been completed, I have had one communication from Mr. Lentz in which some of his people asked a further subdivision between refrigerator cars and produce cars. He brings it out as follows: "So far as refrigerator and produce cars are concerned, the mileage rate on refrigerator cars is about three cents, and on produce cars, six mills. It is thought, therefore, that these classes should be separated and more clearly defined."

In the body of the report we tried to bring out that we had gone over a great deal of equipment scattered through the country, and we found it simply impossible to make a classification that would be readable or understandable if we attempted to go into a very definite classification of cars. We considered the produce cars, and the committee thought that the XV car would cover a car of that kind, it being a ventilated box car. That is the only suggestion that came to us since the report was completed.

The committee was appointed at the suggestion of the American Railway Association, and it might be proper for me to suggest that it may be well for us to refer the report to that association if anyone will make a motion to that effect.

The report was approved and referred to letter ballot for Recommended Practice.

SALT-WATER DRIPPINGS FROM REFRIGERATOR CARS.

The committee made a series of tests during the hot weather of last summer, the results of which are plotted on the accompanying chart. These tests justify the committee in making the following recommendations:

M. K. Barnum.

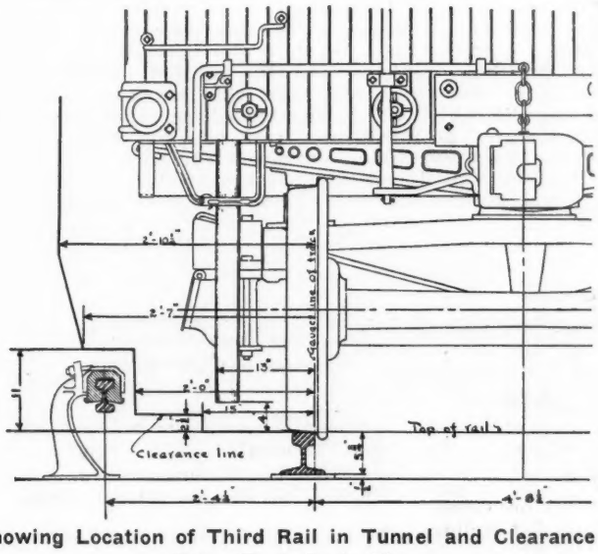
Chairman, Committee on Salt Water Drippings from Refrigerator Cars.

1. All salt-water drippings should be retained in the ice tanks and drained off only at icing stations.

2. The total capacity of drain openings should not exceed the capacity of traps, and the capacity of both drains and traps should be sufficient to release all drippings within the time limit of icing the train.

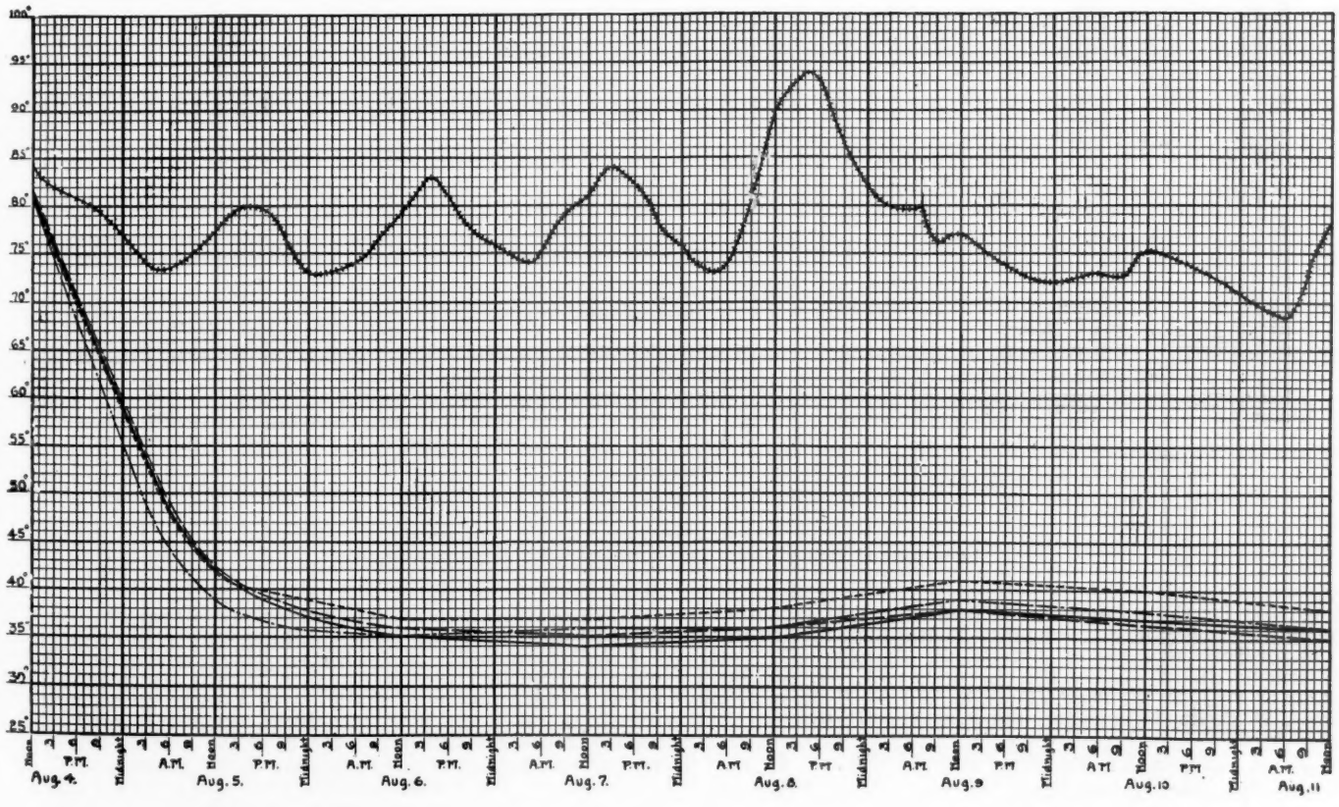
3. The mechanism adopted for handling drain valves should be simple and positive, and so designed as to insure closing the valves before the hatch plugs can be returned to their places.

4. Salt drippings should be conducted from ice tanks through the drain valves above described and thence to the outside of cars through the regular traps and drain pipes.



Showing Location of Third Rail in Tunnel and Clearance of Brine Tank Drain Pipes.

The packing companies have coöperated with the committee in the investigation, and have expressed their willingness to put into effect the practice recommended by the com-



KEY AND EXPLANATION OF CONDITIONS:

A ———— = A.R.L.-8318 No hand hole plates. Brine was allowed to escape as fast as ice melted.

B —·—·— = A.R.L. 9917 Overflow stopped. All brine was retained throughout the test except that which overflowed the top of tank at re-icings.

C - - - - - - - = A.R.L. 8074 Drained at re-icing. All brine was drained off at times of re-icing.

D ———— = A.R.L. 7103 Standard tanks. 28 inches of brine collected in tank. After that, brine escaped through overflow pipes as ice melted.

Top curve shows outside temperature, taken hourly during test.

CHART SHOWING TEMPERATURES OBTAINED IN A TEST OF ICE AND BRINE TANKS WITH DIFFERANT ARRANGEMENTS FOR DISPOSING OF THE BRINE. MADE AT ARMOUR CAR LINE SHOPS - AUGUST '09

mittee, if these recommendations meet with the approval of the Master Car Builders' Association.

In addition to the subject of "Salt-Water Drippings," the committee has received correspondence from the Railroad Refrigerator Service Association, suggesting the following questions:

1. The uniform height of refrigerator cars from the rail to the floor.
2. The adoption of a standard drip cup for refrigerator.
3. Relatively small ice tanks.

The Railroad Refrigerator Service Association has not presented sufficient data to show the necessity for special action on these subjects, and the amount of information which your committee has been able to obtain indicates that any difficulties which may have been experienced from these features of refrigerator cars are due rather to old designs than to prevailing practice. Therefore, if it is the desire of this Association to have these questions investigated, we would recommend either that a special committee be appointed for the purpose, or, if preferred, that the present committee on Salt-Water Drippings be continued for the work.

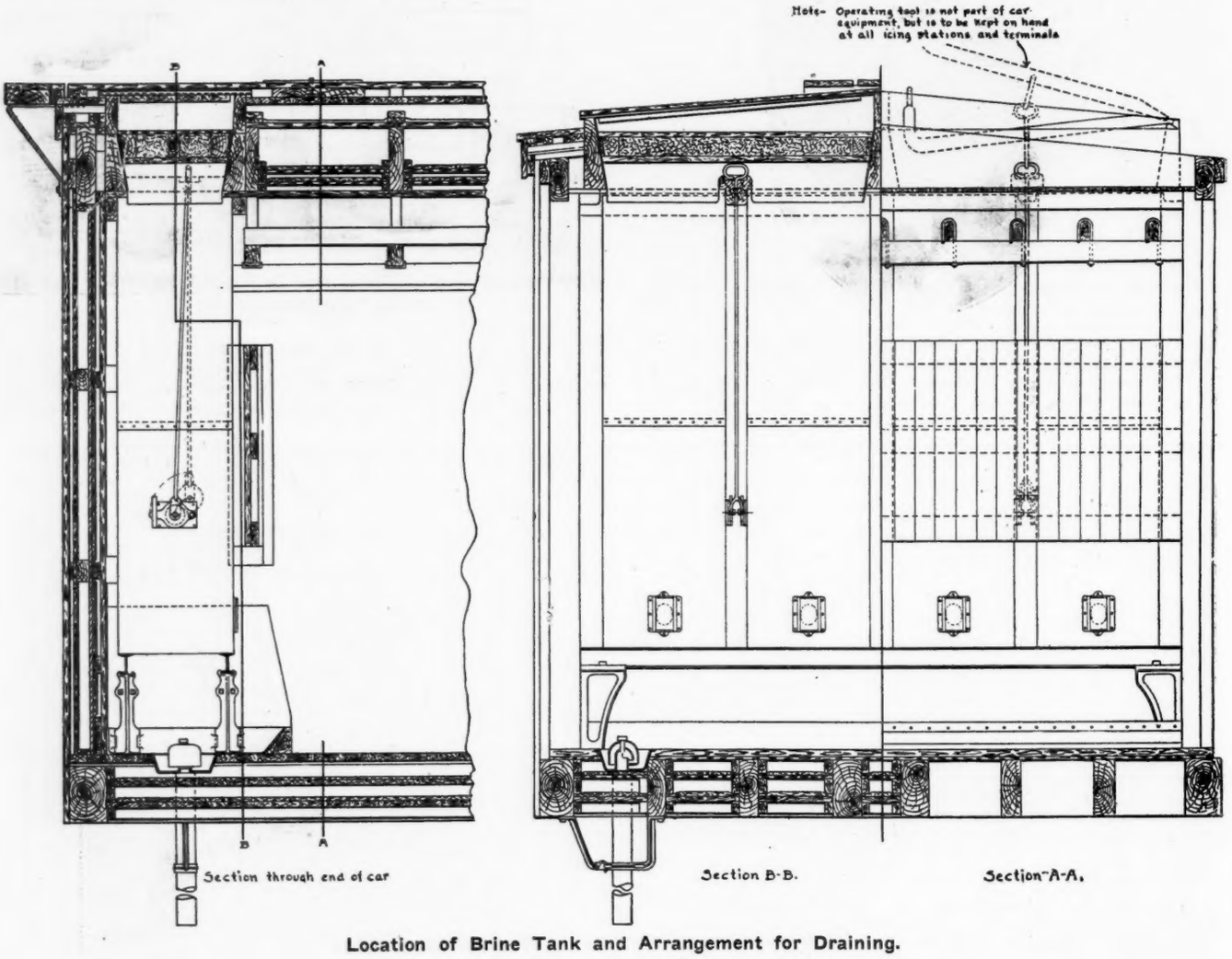
The report was signed by: M. K. Barnum (Ill. Cen.), Chairman; G. W. Lillie (St. L. & S. F.), W. E. Sharp (Armour Co.), E. W. Pratt (C. & N. W.), D. C. Ross (Mich. Cen.), W. C. Arp (Vandalia), and P. Maher (C. & A.).

DISCUSSION ON SALT WATER DRIPPINGS.

F. W. Brazier: I move that the report of the committee be accepted and the recommendations adopted, which means the discharge of the committee, the recommendations to go to letter ballot.

E. W. Pratt (C. & N. W.): As a member of this committee, I feel that we should not let the opportunity go by without saying a word as to the attitude of the packers, who, I believe, own practically 99 per cent of all the meat cars in this country. This matter, as most of you know, was brought more forcibly to the attention of this association on account of the very great damage done to rails, rail-fastenings, bridges, switches and various automatic switching apparatus. The amount of money involved in the depreciation of these various devices has been variously estimated. One railway of not much over fifteen hundred miles claims a depreciation from these causes of a half million dollars. Others are a little less modest in their figures, but the total amount of depreciation, as caculated by the maintenance of way department, is very large. The owners of meat cars are almost invariably private owners, and there have been a good many times when the owners of private cars have been criticised by the railway members of this association.

They have, however, come forward, and, in fact, as early as this spring, voluntarily agreed to equip cars in the manner suggested by the committee as soon as it was found that it was the unanimous report of the committee, deeming it unnecessary even to wait for the action of the association in June. If there is any way to show them our further confidence without more delay, so that all of the cars that are on the repair track during the summer and fall can be changed in accordance with this design, I think we should do it.


Note- Operating tool is not part of car equipment, but is to be kept on hand at all icing stations and terminals
Section through end of car
Section B-B.
Section A-A.

Location of Brine Tank and Arrangement for Drainage.

J. J. Hennessey (C. M. & St. P.): This is a very important question, one that the Maintenance of Way Association has called to the attention of the M. C. B. Association on various occasions. It is the most intelligent report that ever came before the association, and I feel that the private lines can proceed to equip their cars according to the recommendations of the committee, because I feel assured that the report of the committee will be approved by letter ballot.

Mr. Brazier's motion was carried.

MOUNTING PRESSURES FOR WHEELS.

1. To specify certain mounting pressures for wheels and not specify the greater workmanship in boring the wheels and turning the wheel seats of the axles, would be only incomplete information.

2. A very careful study has been made in one of the larger railroad shops, covering the entire operation of machining and mounting wheels and axles, with the idea of improving the work, and, if possible, reducing the cost.

3. It developed that proper mounting of wheels depends on the grade of workmanship in turning the wheel seats and boring the wheels.

4. It has further been demonstrated that the work can be done properly without any additional cost over a lower grade of workmanship and with the same grade of men as ordinarily

E. D. Nelson.

Chairman, Committee on Mounting Pressures for Wheels and Axles.

employed. The men employed on this class of work usually become experts and can, if properly instructed, turn out work of the best character.

5. It is important to consider that good work can not be performed without good tools. Proper shop practice will not permit lathes and boring mills to get in bad repair. Lathe centers out of line or the V's worn may allow an axle to be turned tapered, while lathes in proper repair will insure wheel seats being turned straight. A tapered wheel seat with the wheel bored straight can not be expected to make a proper fit at any mounting pressure.

6. A very satisfactory test for lathes is to take two or three light cuts from an axle wheel seat, say seven inches

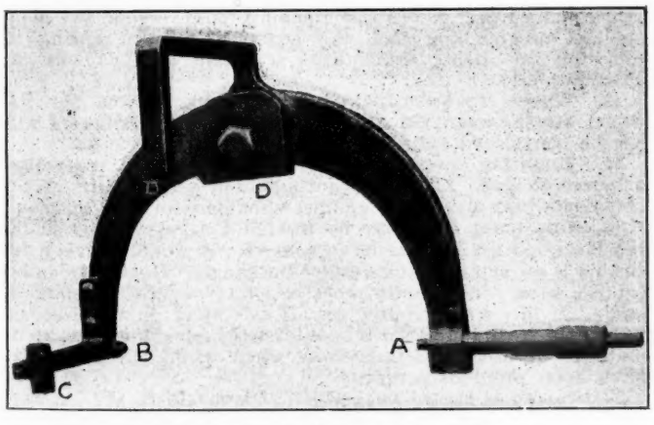


Fig. 1.—Caliper for Wheel Seat.

long, and measure the diameters with micrometer calipers. Good practice indicates that there should not be a variation in diameter exceeding two one-thousandths (.002) of an inch. The same attention given to lathes should be extended to boring mills to see that they are in proper condition to turn out good work.

7. The general tendency has been to finish axles with too rough a wheel seat, which results from too coarse a feed. This makes only partial contact between the wheel seat and axle. While axles may hold satisfactorily under these conditions, there is always an element of uncertainty, which can be eliminated by better practice. The axle, roughly turned in this way, can not be accurately calipered, and this is essential to good fitting and security. Furthermore, in mounting the wheel, the high ridges obtained with a roughly turned wheel seat are pushed off, principally at the outer end of the axle, reducing its diameter and making the turning of the wheel seat necessary when preparing the axle for mounting wheels at a later time. There is, also, a bad moral effect on the men, who, if permitted to carry out this practice, will extend it to journals as well.

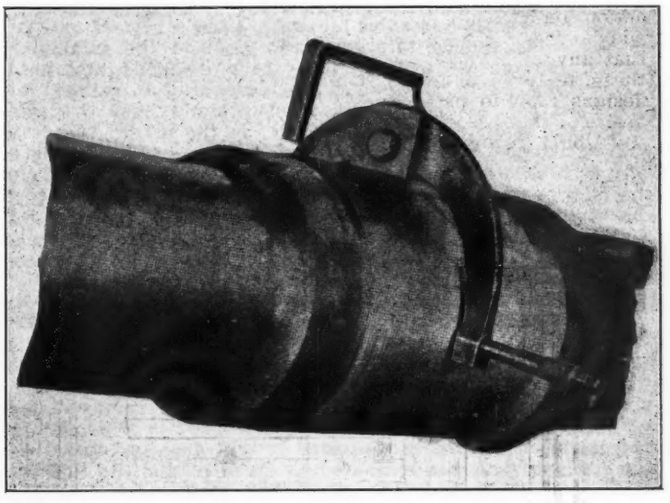


Fig. 2.—Caliper Resting on Wheel Seat.

8. It has been demonstrated with fairly rigid lathes that axles can be turned at a speed of forty to fifty revolutions per minute, the limit of speed being the chattering of the tool rather than the cutting speed. With this high speed, run with a fine feed, an axle can be turned in about the same time as by slow speeds and coarser feed. The higher speed results in better work without increased cost.

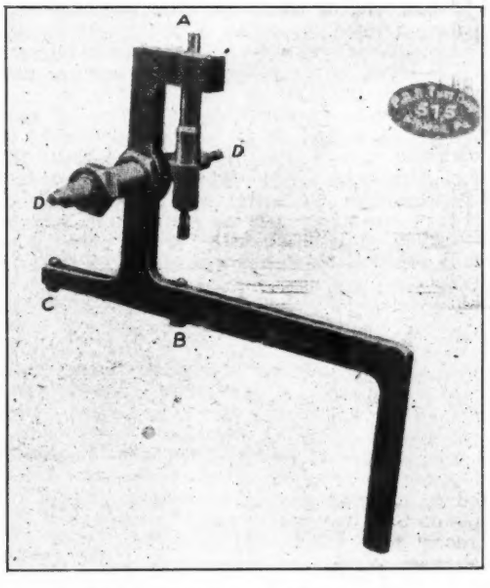


Fig. 3.—Caliper for Wheel Bore.

9. Having secured straight and true wheel seats and wheel bores, the next necessity is for the proper diameters necessary in secure mounting.

10. Micrometer calipers are necessary for several reasons. The axles and wheels can be calipered more quickly and more accurately than by machinist's calipers or snap gauges. The "draw" or difference in diameter of wheel seat and bore which has been determined for a proper fit can be secured without difficulty. The difference between the diameters of wheel seat and bore of wheel expressed in thousandths of an inch can be measured accurately, whereas with ordinary calipers

it is a question of skill of the workman and with snap gauges the same is true to a lesser degree.

11. For shop inspection, certain limits can be set between which the axle or wheel may vary and be good enough for all requirements. The inspector having set limits is not permitted to use judgment, which is always liable to error; if the work is within the limits he must pass it. If not, it must go back to the man who did the work, and he, knowing his work must meet certain definite requirements determined by the proper measuring instrument, naturally endeavors to turn out good work rather than take the chance of doing it over without pay.

12. To successfully use the ordinary trade micrometer caliper for wheels and axles takes time and a certain amount of skill. To reduce this time and skill to the minimum, special micrometer calipers have been designed and used successfully. Fig. 1 shows a photograph of a caliper for wheel seats. "A" is an ordinary micrometer head that can be bought in the open market; "B" is the anvil; "C" is a stop set square with a line through "A" and "B"; "D" is a stop or limit which may be turned, so that the distance from the stop to the line from "A" to "B" shall be approximately the radius of the wheel seat. In practice, this stop "D" for the 5½ inch by 10 inch journal axle is correct for wheel seats 6⅞ inches in diameter, and is approximately correct for wheel seats from 6¾ inches to 7 inches. By turning the stop "D" one-quarter turn, it is suitable for 5 by 9 inch journals.

13. In using this caliper, it is placed over the axle, with stop "D" resting on the wheel seat, as shown in Fig. 2. The stop "C" and anvil "B" are then brought firm against the wheel seat. The micrometer is screwed up by a ratchet stop until the ratchet clicks. The caliper is then removed and read. On a trial, eight axles were measured in five minutes and twelve wheels were measured in the same space of time. Each wheel seat was measured at three points, the average taken and chalked on the axle. The wheel seats had not been previously measured and but few were of the same size. This is much more rapid than calipering by other means, especially for axles varying in diameter.

14. Fig. 3 illustrates a caliper for wheel bore. "A" is the micrometer head, but graduated for internal measurements; "B" is the anvil; "C" the stop, set at right angles to a line from "A" to "B"; "DD" are right and left hand screws, turning together by means of a link not shown.

15. In calipering a wheel the screws "DD" are roughly adjusted somewhat smaller than the bore of the wheel. The anvil "B" and stop "C" are brought against the bore and micrometer screwed out until the ratchet clicks. (See Fig. 4.) On a trial five wheels were calipered and size chalked on wheel in five minutes.

16. The measuring was done by an apprentice, who was able to do it in an entirely satisfactory manner after about one hour's instruction.

17. This method of calipering and marking each wheel seat with the points and the further calipering of the bored wheels with the sizes marked upon them permits the proper selection of wheels at wheel seats for mounting, in order to secure the pressures necessary.

18. As to mounting pressures, the committee recommends the following, in conjunction with the character of workmanship already referred to, as being an essential in the problem.

M. C. B. Axle	Size of Journal	WHEELS			
		Cast Iron (Tons)		Steel (Tons)	
		Maximum	Minimum	Maximum	Minimum
A	3¾ in. x 7 in.	41	36	66	54
B	4¼ in. x 8 in.	44	36	66	54
C	5 in. x 9 in.	55	45	83	68
D	5½ in x 10 in.	55	45	83	68

19. The following general specifications, which have been quite thoroughly tested, are submitted for consideration.

Axle Wheel Fit.

20. Must be turned as smooth as possible with lathe tool having flat cutting edge. Finishing cut must not be taken with lathe feed coarser than 16 pitch. Taper on axle wheel seat for entering wheel must not exceed one-half inch in length and must be turned with broad, straight-faced tool, making regular taper without ridges or rings. Wheel fits to be calipered at three points, namely: One inch from each end, middle and other points if indications point to excessive variations in diameter.

21. Axles shall not be considered as suitable for mounting where there is a difference in diameter between any two measurements exceeding .003 in. This, however, shall not be construed to mean that wheel seats on each end of axle are to be of one size. Each tenth axle from each lathe shall be measured for soundness. No axle varying over .001 of an inch when measured at two points ninety degrees apart on circumference at equal distance from end shall be considered as suitable for mounting.

Wheels.

22. To be bored smooth. Finishing cut shall be made with tool or tools having a cutting face at least 3-16 of an inch wide. Feed not to exceed 8 pitch. To be bored with a rough and finishing cut. The finishing cutter when taking the finishing cut must not be cutting when roughing tool is also rough-boring, unless the finishing tool is supported independent of roughing tool, the latter to prevent spring of roughing tool being transmitted to finish tool, causing an irregular bore.

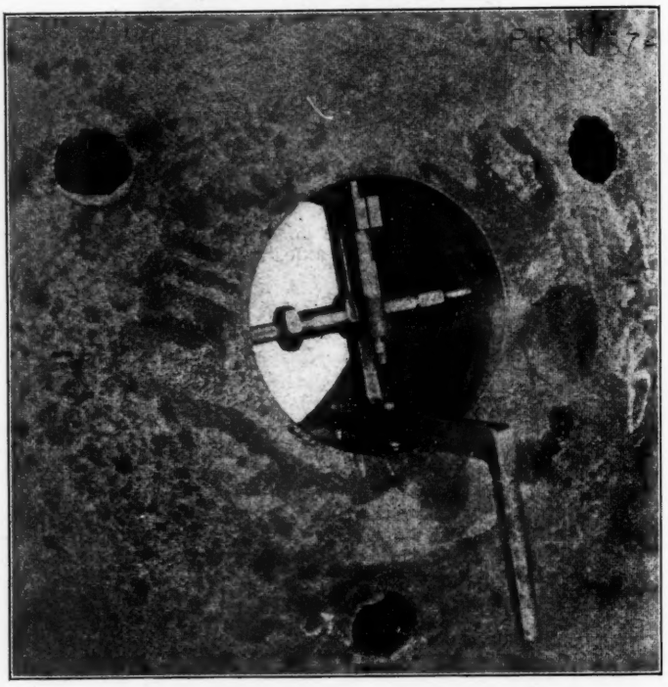


Fig. 4.—Caliper Adjusted to Wheel.

23. Wheels to be calipered with micrometer caliper. A wheel varying over .002 of an inch in any two diameters will not be considered satisfactory for mounting.

24. Mounting presses to be provided with recording pressure gauges. All wheels not mounted within limits given, or wheels that are forced against shoulder, to be withdrawn.

25. One point that may be foreign to the subject should receive attention, that is lathe centers. It would be very desirable if all shops were to adopt one angle. Generally, lathe centers used for ordinary work are sixty degrees, including angle. If this were adopted for all axle work, it would result in the axles running true on centers, reducing the amount of material necessary to turn away when truing up axles that have been previously turned.

The report is signed by:—E. D. Nelson (P. R. R.), A. Forsyth (C. B. & Q.), W. T. Gorrell (P. & R.), J. F. Walsh (C. & O.) and W. P. Richardson (P. & L. E.).

DISCUSSION ON MOUNTING WHEELS ON AXLES.

The President: It is moved and seconded that the report be accepted and printed in the proceedings.

H. H. Vaughan (C. P.): Would that indicate that this report is accepted as reflecting the opinion of this association?

The Secretary: It simply means that no action was taken.

Mr. Vaughan: This report simply specifies the minimum and maximum mounting pressures and the methods by which the fit is obtained. It is impossible to tell whether the method is carried out or not, through any subsequent inspec-

tion of the axle. I feel that any specifications for mounting wheels should include the pressure when the wheel is partly pressed on, and the pressure when it is completely pressed on. The final pressure is not a satisfactory test, unless the fit is prepared in accordance with these specifications. If we are going to use this as recommended practice we should use recording gages that indicate the pressure at different portions of the fit. True, if the axle and wheel are prepared in accordance with the specifications no doubt the pressure will increase uniformly throughout the fit, but it is impossible for anyone to tell, after the wheel is pressed on, whether the men fitting the wheel carried out the instructions, whereas the recording gage showing the pressure at different portions of the fit of the wheel would show whether the wheel was properly mounted.

The mounting of wheels is a thing to which we should give close attention. We are apt to regard a loose wheel in a rather haphazard manner, but at the same time a loose wheel makes an opportunity for an accident, and we cannot emphasize this fact too strongly; the only way to protect ourselves against loose wheels is to have a record measured at the various points along the fit.

T. H. Curtis (L. & N.): I should have liked to have seen the size of the wheel fit in the report. Again, I think the report should have contained a statement as to whether the ton is a net ton; and furthermore, a word of caution would be well in a report of this kind, that the wheel fit should not be tapered at the back to make the axle slip off easily and thereby lose one and one-half inch. It should fit all the way. Furthermore, a note should be added to the effect that the wheel should be fitted to the axle, and not the axle to the wheel.

The motion was carried.

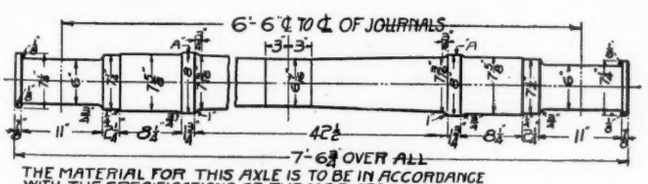
AXLE TO CARRY 50,000 POUNDS.

E. D. Nelson, engineer of tests, Pennsylvania Railroad Company, presented the following paper on the "Design of a Freight Car Axle to Carry a Load of 50,000 Pounds:"

1. During the past year at least four railroad companies, represented in the Master Car Builders' Association, have had under consideration a car axle of a larger capacity than the Standard "D" axle of this Association. As a matter of fact, there have been designs made of axles of larger capacity, and naturally these differ somewhat in detail.

2. The importance of eliminating variations in design is apparent, and I have, therefore, considered it advisable to present a design of axle having a capacity of 50,000 pounds, with a view to its consideration at the present convention.

3. If the Association would, after consideration, recommend that the adoption of this design as Recommended Practice for one year be submitted to letter ballot, it would give an opportunity to establish a design which could be followed by any railroad company during the coming year and prevent axles of larger capacity than the "D" axle, varying in detail, getting into service.


6'-6 ℄ TO ℄ OF JOURNALS
3"
3"
A
A
11"
8½"
42½"
8½"
11"
7'-6¾" OVER ALL
THE MATERIAL FOR THIS AXLE IS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE M.C.B. ASSOCIATION
OF THE TWO PORTIONS MARKED A WHICH ARE TO BE LEFT UNFINISHED ONE OF THESE MUST BE STAMPED WITH THE HEAT OR BLOW NUMBER AND THE OTHER STAMPED WITH THE NAME OF THE MANUFACTURER.

M. C. B. Axle "E," Capacity 50,000 lbs.

4. In submitting this design of axle, the method outlined in the report of the Committee on Axle, Journal Box, Bearing and Wedge, made to the convention of 1896, has been followed. The method outlined at that time is applicable to axles of any capacity, so far as our present knowledge is concerned. The assumed data are as follows:

Weight of body and trucks.....	55,580	pounds.	
Weight of lading	140,000	"	
10 per cent additional lading.....	14,000	"	
Total			209,580 pounds.
Deduct weight of 8 33-inch forged steel wheels	5,720	"	
Deduct weight of 4 axles.....	3,860	"	
Total			9,580 "
Total weight on four axles			200,000 "
Total weight on one axle			50,000 "

5. Assuming for this load that the journal should be 11 in. long, its diameter should be, according to (Formula 5), page 152, and by substitution in (Formula 12), page 153, M. C. B. Proceedings of 1896, 5.38 in. Taking the nearest ⅛ in. above this makes the diameter 5½ in., and an allowance of ½-in. diameter for wear brings the diameter of the journal, when new, to 6 in.

6. Assuming, then, that the journal is 6 in. in diameter by 11 in. long, the consideration, so far as friction and lubrication are concerned, would be, quoting the figures from page 169 of the Proceedings of the Association of 1896, as follows:

4¼ by 8-in. journal, new, pressure per sq. in..	449 lbs.
5 by 9-in. journal, new, pressure per sq. in..	469 "
5½ by 10-in. journal, new, pressure per sq. in..	470 "
6 by 11-in. journal, new, pressure per sq. in..	503 "
4¼ by 8-in. journal, old, pressure per sq. in...	533 "
5 by 9-in. journal, old, pressure per sq. in...	525 "
5½ by 10-in. journal, old, pressure per sq. in...	516 "
6 by 11-in. journal, old, pressure per sq. in...	549 "

7. These figures indicate that from the standpoint of friction and lubrication, satisfactory service may be expected from these journals.

8. Concerning the diameters of the axle at the wheel seat and center (Formula 10), page 152, and (Formula 12), page 153, of the Proceedings of 1896, give the following diameters:

Wheel seat	7.40 in.
Center	6.30 "

For the wheel seat it has been customary to add ¼ in. to the calculated diameter, which would make the diameter at the wheel seat, when new, 7.650 in. It has been customary, however, to keep the diameters at the wheel seat to the nearest ⅛ in., and by making the diameter 7⅝ in., ¼ of an inch diameter can be secured above the calculated diameter within 2½ one-hundredths of an inch. To the calculated diameter at the center, an allowance must be made for the cylindrical portion of the axle, so that this portion does not change abruptly at its intersection with the taper portions of the axle. Taking the diameter to the nearest 1-16 in., would make the diameter at the center 6 7-16 in. The principal dimensions, with the axle new, will, therefore, be as follows:

Journal, diameter	6 in.
Journal, length	11 "
Wheel seat, diameter	7⅝ "
Center, diameter	6 7-16 "

9. The satisfactory results which have been obtained with former designs of axles of the M. C. B. Association, based on the formula as given in the report of 1896, seem to warrant the use of a fibre stress of 22,000 pounds per square inch as used for all of the previous M. C. B. axles, and this figure has been taken in the formulas in order to arrive at the diameters which have been given.

10. The drawing shows all the dimensions of the proposed axle. It has been designated in accordance with the former practice of the Association as Axle "E" and the quality of the material is to be the same as that required by the present M. C. B. Specifications.

11. Attention should be called to the fact that the distance between the dust-guard seats is 62½ in., while in all of the other designs of axles of the Association it is 63 in. In the design submitted, this ½ in. was taken off in order to get more clearance back of the journal box, and this will necessitate ¼ in. more dish in the wheels mounted on this design. While at first thought this may apparently indicate inability to interchange wheels between axles, it should be stated that the forged wheels with outside hub diameters suitable for the No. "D" axle, can probably not be bored out so as to fit the present design of axle and leave sufficient material in the hub. It will, therefore, mean that for the axle herewith submitted a special design of wheel will be required.

12. It is only necessary to add finally that, while the axle herewith submitted is nominally for a car having a capacity of 140,000 pounds, it must be understood that the axle is designed to carry a given load and the capacity of the car is only incidental. If a car body weighing less than that assumed above can be constructed, the decrease in the light weight can, of course, be added to the capacity. The point which should be emphasized is that the axle is designed to carry a load of 50,000 pounds and is not necessarily an axle suitable for a car of 140,000 pounds capacity, regardless of the weight of the car body on the trucks.

DISCUSSION ON 50,000-LB. FREIGHT CAR AXLE.

F. W. Brazier (N. Y. C. & H. R.): I move that the paper be accepted and submitted to letter ballot. Referring to Section 3 of the paper, we are coming to this axle sooner or later. Some will want one-half inch or one inch difference,

and some the standard size. I can see no harm in having it go to letter ballot for recommended practice for one year.

J. J. Hennessey (C. M. & St. P.): I question very much the advisability of having a special axle for the higher capacity car. We find it difficult to have our wheels stand up under our so-called 100,000 lbs. capacity cars. I do not know what the wheels will do under cars of 140,000 lbs. capacity. It seems to me that the axle is objectionable and that you will have to have a special wheel for it, with a different dish.

Mr. Kiesel: It will be necessary to have a special wheel for the axle anyway. You could not use the present standard wheel; it would not stand the strain. Therefore, since we need a special wheel anyway, we might as well dish it one-quarter in. more, and give an additional one-quarter in. between the box and the hub of the wheel.

Mr. Hennessey: A great many wheel manufacturers have been making wheels for years, the same for eighty thousand and one hundred thousand lb. axles, and boring the wheel out so it will fit either capacity. I believe a wheel could be so designed that it could be used for either the one hundred thousand pound or the one hundred and forty thousand pound capacity car.

Mr. Kiesel: It is true that some manufacturers have made wheels the same for 80,000 and 100,000 lbs. capacity cars, but the wheel was actually designed for the 100,000 lb. cars, and a compromise was made by boring it smaller for the 80,000 lb., because it had more metal than was necessary. A similar compromise could be made between the 100,000 lb. and the 140,000 lb. capacity car. It would only be necessary to face off one-quarter inch from the outside of the hub in one case,

F. M. Gilbert.

Chairman, Committee on Springs for Freight Car Trucks.

and one-quarter inch from the inside of the hub in the other case.

C. D. Young (Penna. Lines, West): The time has come when we will have to provide a journal box for this axle as well as a wheel, and with the new journal box and the higher capacity there may be some difference in the wheel base which will be required for the truck, the width of the bolster opening and the depth of the brake beam, and with that, of course, would be included the springs. The time has come when we should have a committee appointed to consider the entire truck form for the higher capacity car as recommended practice. The axle presented by Mr. Nelson is an introduction to the subject. It hardly seems practicable to have the axle only, although it would be well to make the present recommended axle the recommended practice. I make a motion to the effect that a committee be appointed to consider a truck for higher capacity cars.

The President: Mr. Young, your remarks will undoubtedly be considered by the executive committee, and perhaps a committee will be appointed to do it, or the committee may decide to refer the matter of designing such a truck to the present committee on Freight Car Trucks. It is moved and seconded that the design of axle submitted by Mr. Nelson be referred to letter ballot for adoption, as recommended practice.

The motion was carried.

SPRINGS FOR FREIGHT CAR TRUCKS.

The committee has not developed the subject sufficiently to make a creditable report, and would respectfully ask for more time.

The report is signed by:—F. M. Gilbert (N. Y. C. & H. R.), chairman; W. F. Keisel, Jr. (P. R. R.), W. H. Wickhorst (C. B. & Q.), T. A. Lawes (So. Ind.), and H. C. May (L. & N.).

W. F. Bentley (B. & O.): I move that the committee on Springs for Freight Car Trucks be granted further time.

The motion was carried.

TRAIN LIGHTING.

The committee has assumed that its scope of action included suggestions for recommended practice which would assist in car interchange, protection against fire, and improved service, but which would not in any way interfere with the development of the art. The committee desires to suggest the following as recommended practice:

(1) That each electrically lighted car be provided with a notice describing the apparatus in the car, in accordance with Exhibit A, and that this notice shall be posted in a conspicuous place in or near the switchboard locker.

(2) That where train line connectors are used, Gibbs' No. 3 G Train Line Connector be used, located as shown on Fig. 1, with connections to the battery, dynamo and jumper, as shown on Fig. 2.

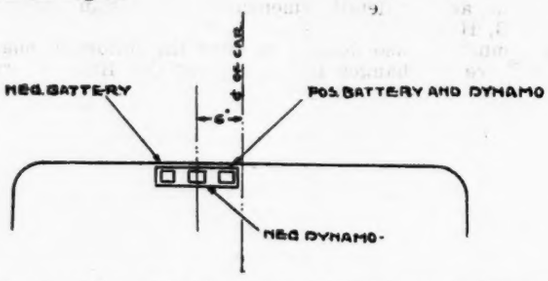


Fig. 1.—Location of Connector and Arrangement of Terminals When Facing Car.

NOTE.—In Head End System Jumper to be placed across negative battery and negative dynamo.

(3) That batteries shall be connected up with the positive to the right, facing the car, as shown on Fig. 2.

(4) That where double compartment tanks are used, the connections and arrangement of battery terminals are to be as shown on Fig. 3.

A. B. C. R. R. CO.
ELECTRIC LIGHTING.

System.....
No. cells in series.....
No. sets in parallel.....
Amp. hrs. capacity of battery (at 8 hrs. rate).....
Normal charging rate.....Max.....
Size of train line wires.....
Amp. discharge full light.....
Setting axle generator.....
Cut in voltage.....
Amperes no light.....
Amperes full light.....
Axle pulley diameter.....
Generator pulley diam.....

WIRING DIAGRAM.
Show Capacity of Fuses.

(5) That each electrically lighted car shall be provided with two charging receptacles with swivel supports, as shown in detail on Exhibits B, C and D, installed one on each side of the car, as shown on Exhibit E.

(6) That each electrically lighted car be provided with two 150 ampere fuses, close connected to each battery terminal; the fuses to be arranged and placed in a cast-iron box, as shown on Exhibit F, and installed on car, as shown on Exhibit E.

(7) That each electrically lighted car shall have provided on the switchboard in the car a switch, fused switch, or fuses. The switches or fuses to protect and completely disconnect the following parts:

(a) Train line (where train line is used),
(b) Battery,
(c) Axle dynamo (where axle dynamo is used).

(The axle dynamo switch or fuses to control the positive, negative and field of the dynamo.)

Each of the above switches or fuses to be plainly stenciled designating the part controlled.

(8) Where a main lamp switch is used, or where fuses

controlling all lamps are used, they shall be so stenciled in plain letters.

(9) That all fuses on cars shall be National Electric Code fuses.

(10) That where axle dynamos are used, negative, positive and dynamo field shall be fused as close as possible to the dynamo and prior to the said leads either entering the conduits or being secured to the bottom of the car. The above fuses to be used for emergency service only and to be at

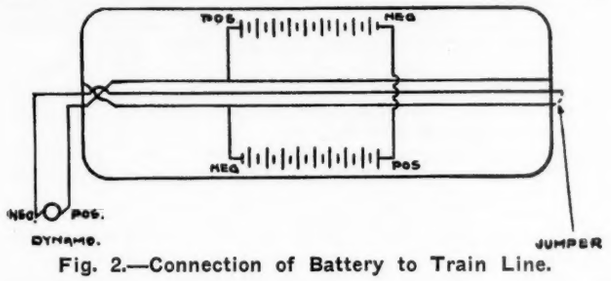


Fig. 2.—Connection of Battery to Train Line.

least 100 per cent above the capacity of the fuses on the switchboards protecting the same leads.

(11) That the following voltages should be used:

60 volts for straight storage, head end and axle dynamo systems.

30 volts for straight storage and axle dynamo systems.

(12) That batteries shall be installed in double compartment tanks as per detail dimensions and design shown on Exhibits G, H and I.

The committee also desires to offer the following suggestions relative to changes in the Master Car Builders' rules covering the interchange of equipment, which suggestions have been forwarded to the Arbitration Committee:

Page 93, Section 3, Paragraph (c), to be changed to read as follows:

"Line expenses shall consist of the expense of terminal cleaning, icing, lubrication (oil, waste, tallow and labor), lighting (oil, charging current, wicks, chimneys, burners, shades, gas, candles, fuses and incandescent bulbs), heating (terminal heating and coal furnished individual car heaters en route), or broken glass."

Page 94, Section 7, to be changed to read as follows:

"No labor charge shall be made for applying brake shoes, incandescent bulbs, journal bearings, hose (air, steam or signal), or for icing, filling lamps, charging batteries, gassing tanks or coaling cars."

Page 94, Section 8, to be changed to read as follows:

"No credit to be allowed for burned-out incandescent bulbs, burned-out fuses, or scrap brake shoes removed.

NOTE.—Steel-back brake shoes not to be removed if over

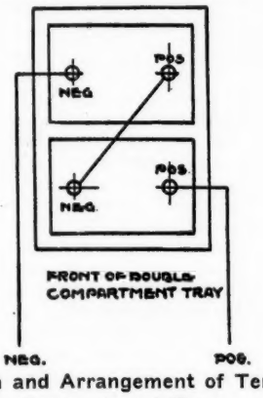


Fig. 3.—Connection and Arrangement of Terminals in Double Compartment Tray.

NOTE.—When Westinghouse Hand Connectors are used male head to be used for positive, female head for negative terminal.

one-half (½) inch thick; gray-iron shoes not to be removed if over three-quarters (¾) inch thick.

An additional paragraph to be added just before "Defects in Wheels," at the bottom of page 95, to read as follows:

"On electrically lighted cars a battery depreciation charge of 75 cents per day shall be made."

On page 104, two items should be added in the list of prices immediately under Item No. 24, as follows:

"Electrical material, incandescent bulbs, fuses, etc., at cost.

"Electric current for charging batteries, at cost."

The report is signed by:—T. R. Cook (Penn. Lines), chairman, E. A. Benson (Pullman Co.), Carl Brandt (L. S. & M. S.), Ward Barnum (L. & N.), and J. H. Davis (B. & O.).

DISCUSSION ON TRAIN LIGHTING.

Mr. Lentz: I would like to ask the privilege of the floor for E. J. Cartwright, electrical engineer of the Lehigh Valley.

Mr. Cartwright: I would like to submit a few exceptions to the report, as follows:

System,			
Number cells in series,			
Number sets in parallel,			
Ampere-hours capacity (at 8 hr. rate)			
Normal charging rate			maximum
Size of train wires			B & S Gauge
Number of train wires			
Ampere load—all lights (lights only)			
Setting axle generator			Amperes
Cut in voltage			
Amperes—no light			
Amperes, full load (lts. & Battery)			
Axle pulley—diameter	face	diam. bore	
Generator pulley—diameter	face	bore	
Voltage of lamps			

(2) A suitable cap or cover should be provided to cover exposed end of receptacle when not in use.

(3) Should read as follows: "All terminal connections on switchboard, regulators, generators, batteries, train connectors, the positive pole must be on the right, facing the same."

The above is the recommendation of the Association of Railway Electrical Engineers.

(5) Would substitute the following: "That each electrically lighted car having storage battery on it must be provided with two charging receptacles of sufficient carrying capacity to carry 65 amperes of current without heating; each provided with a self-closing cover, and terminal connections to receive an Anderson charging plug type 'A.' The positive pole to be connected to the outside annular ring; negative to center post."

(9) O. K., except fuse in cast iron box under car, which *may be* of the link type with knife contact terminals.

(10) The wording is not clear, but presume that the negative and positive armature leads, also the negative and positive field leads, shall be fused, etc. I do not think it necessary to fuse the field circuit except on the switchboard inside of car. Would suggest that the fuses under car be omitted as relates to the fields of dynamo.

(11) Should read as follows: "That the following voltages should be used: 64 volts (nominal) for head end and straight storage systems. 32 volts (nominal) for axle dynamo system."

(12) Should read: "That storage batteries for car lighting should be installed in lead or rubber lined wooden tanks. Each tank provided with distance pieces, so that a clear air space of at least ¾ in. is provided between the sides, or bottom of battery box, and an adjoining tank."

There are other very important matters relating to train lighting which should be brought to the attention of the committee. I will mention only three:

1. Clearances of generator and its support above top of rail and body of car.
2. Size of axle pulley.
3. Train connectors.

These question have been the subject of considerable discussion among the members of the Association of Railway Electrical Engineers and for your information I quote from their proceedings:

"1. All parts of suspension gear or generator on a new truck, when car is on a level straight track, must have at least a clearance of 6 in. from top of rail and a clearance of at least 3½ in. between any part of the mechanism attached to the car body.

"2. That the internal diameter (or bore) for the axle pulley must be 7½ in., straight. Length of hub 6½ in. That the bushing must be fastened to the axle, independent of the pulley, having a straight pulley seat 8½ in. long and 7½ in. external diameter, finished.

"3. That all cars operated on head end system be equipped with three train lines, and that all cars furnished by foreign roads for service in trains on head end system be equipped with either permanent or temporary train lines, with Gibbs No. 3-G train connector and receptacle.

Mr. Davis: Inasmuch as the art of electric lighting of cars is rapidly being developed, it might be well to continue the committee on Train Lighting. If it is continued, it could, during the coming year, confer with a committee of the Association of Railway Electrical Engineers and others interested. It might be well to accept the committee's recommendations with reference to bearing boxes and to the fusing of various circuits. Those are matters which are important, and which will prevent or minimize the fire hazard.

G. W. Wildin (N. Y. N. H. & H.): The committee recommends a depreciation of 75 cents per day for batteries. That is equivalent to between forty and fifty per cent per year.

It seems to me that is rather a high depreciation. The life of a battery ought to be four years at least.

Mr. Davis: That matter was very carefully considered by the committee. These are the figures upon which five men could agree. They represent a composite opinion. We recognized at the time that it was rather a high rate of depreciation, but the electrically lighted service is worth something, and it is thought that 75 cents a day is so small, as compared to the benefits to be derived, that no one would object to it.

Mr. Wildin: I move that the report be accepted and the committee continued.

The motion was carried.

LUMBER SPECIFICATIONS.

The Committee on Uniform Specifications and Grading Rules for Car and Locomotive Lumber herewith submits its report and recommendations. This matter has been thoroughly canvassed by committees of the Master Car Builders' Association, American Railway Master Mechanics' Association, the Railway Storekeepers' Association and the various lumber manufacturers' associations throughout the country. The specifications meet the approval of the various committees, and especially of the lumber manufacturers.

In order to have standard descriptions of the various woods used by railroads, the following standard names for car and locomotive lumber were agreed upon by the Joint Committee:

1. Ash. To cover what is known as White Ash, Black Ash, Blue Ash, Green Ash and Red Ash.
2. Basswood. To cover what is known as Linden, Linn, Lind or Lime-tree.
3. Beech. To include Red or White Beech.
4. Birch. To include Red, White, Yellow and Black Birch.
5. Buckeye. To cover what is known as Horse Chestnut.
6. Butternut. To cover wood from tree of that name, also known as White Walnut.
7. Cherry. To include Sweet Cherry, Sour Cherry, Red Cherry, Black Cherry and Wild Cherry.
8. Chestnut. To cover wood from tree of that name.
9. Cottonwood. To cover wood from tree of that name. (Do not confuse with Popple or Poplar.)
10. Cypress. To include Red Cypress, Gulf Cypress, Yellow and East Coast Cypress, also known as Bald Cypress.
11. Elm—soft. To cover what is known as White Elm, Gray, Red and Winged Elm.
12. Elm—rock. To cover what is known as Rock Elm.
13. Douglas Fir. To cover Yellow Fir, Red Fir, Western Fir, Washington Fir, Oregon or Puget Sound Fir or Pine, Northwest and West Coast Fir.
14. Gum. To cover what is known as Red Gum, Sweet Gum or Satin Walnut.
15. Hemlock. To cover Southern or Eastern Hemlock; that is, Hemlock from all States east of and including Minnesota.
16. Western Hemlock. To cover Hemlock from the Pacific Coast.
17. Hickory. To include Shellbark, Kingnut, Mockernut, Pignut, Black, Shagbark and Bitternut.
18. Western Larch. To cover species of Larch or Tamarack from the Rocky Mountain and Pacific Coast regions.
19. Maple—soft. To include Soft and White Maple.
20. Maple—hard. To cover what is known as Hard, Red, Rock and Sugar Maple.
21. White Oak. To include White Oak, Burr Oak or Mossy Cup, Rock Oak, Post or Iron Oak, Overcup, Swamp Post Oak, Live Oak, Chestnut Oak or Tan Bark, Yellow or Chinquapin Oak, Basket or Cow Oak.
22. Red Oak. To include Red Oak, Pin Oak, Black Oak, Water Oak, Willow Oak, Spanish Oak, Scarlet Oak, Turkey Oak, Black Jack or Barn Oak, and Shingle or Laurel Oak.
23. Pecan. To cover wood from tree of that name.
24. Southern Yellow Pine. Under this heading two classes of timber are used: (a) Long-leaf Pine; (b) Short-leaf Pine. It is understood that these two terms are descriptive of quality rather than of botanical species; thus, Short-leaf Pine would cover such species as are known as North Carolina Pine, Loblolly Pine and Short-leaf Pine. Long-leaf Pine is descriptive of quality, and if Cuban, Short-leaf or Loblolly Pine is grown under such conditions that it produces a large percentage of hard summer wood, so as to be equivalent to the wood produced by the true Long-leaf, it would be covered by the term Long-leaf Pine.
25. White Pine. To cover timber which has hitherto been known as White Pine, from Maine, Michigan, Canada, Wisconsin and Minnesota.
26. Norway Pine. Also known as Red Pine, from Michigan, Minnesota, Wisconsin and Canada.
27. Idaho White Pine. To cover variety of White Pine from western Montana, northern Idaho and eastern Washington.
28. Western Pine. To cover timber known as White Pine coming from Arizona, California, New Mexico, Colorado, Oregon and Washington. This is the timber sometimes known as Western Yellow or Ponderosa Pine or California White Pine or Western White Pine.
29. Poplar. To cover wood from the Tulip Tree, Whitewood, Yellow Poplar and Canary Wood.
30. Redwood. To include the California wood usually known by that name.
31. Spruce. To cover Eastern Spruce; that is, the Spruce timber coming from points east of and including Minnesota and Canada, including White, Red and Black Spruce.
32. Western Spruce. To cover the Spruce timber from the Pacific Coast.
33. Sycamore. To cover wood from tree of that name, otherwise known as Buttonwood.
34. Tamarack. To cover timber known as Tamarack or Eastern Tamarack, from States east of and including Minnesota.
35. Tupelo. Otherwise known as Tupelo Gum, Bay Poplar.
36. Walnut. To cover Black Walnut (for White Walnut, see Butternut).

It is the opinion that the specifications which we have proposed cover nearly 95 per cent of the lumber used in car and locomotive construction and maintenance, and the question of drawing specifications for the special hardwoods, such as mahogany and other imported lumber, was left open for further consideration.

RECOMMENDED CLASSIFICATION, GRADING AND DRESSING RULES FOR NORTHERN PINE CAR MATERIAL, INCLUDING WHITE AND NORWAY PINE AND EASTERN SPRUCE.

1. Norway Pine to cover what is known also as Red Pine.

White Pine to cover the timber which has hitherto been known as White Pine, from Maine, Michigan, Wisconsin, Minnesota and Canada.

Spruce to cover Eastern Spruce; that is, the Spruce timber coming from points east of and including Minnesota and Canada.

2. Northern Pine Lumber shall be graded and classified according to the following rules and specifications as to quality, and dressed stock shall conform to the subjoined table of standard sizes, except where otherwise expressly stipulated between buyer and seller.

3. Recognized defects in Northern Pine are knots, knotholes, splits, shake, wane, wormholes, pitch pockets, torn grain, loosened grain, sap stain, checks and rot.

Knots.

4. Knots shall be classified as pin, small and large or coarse, as to size; and round or spike, as to form; and as sound, loose, encased, pith and rotten, as to quality.

5. A pin knot is sound and should not exceed ½ in. in diameter.

6. A small knot is larger than a pin knot and should not exceed 1½ in. in diameter.

7. A large or coarse knot is one of any size over 1½ in. in diameter.

8. A round knot is oval or circular in form.

9. A spike knot is one sawn in a lengthwise direction.

The mean or average diameter of knots shall be considered in applying and construing the rules.

10. A sound knot is one solid across its face, is as hard as the wood it is in, and is so fixed by growth or position that it will retain its place in the piece.

11. A loose knot is not firmly set, but still retains its place in the piece.

12. A pith knot is a sound knot with a pith hole not more than ¼ in. in diameter in the center.

13. An encased knot is one surrounded wholly by bark or pitch.

14. A rotten knot is one not as hard as the wood it is in.

Pitch.

15. Pitch pockets are openings between the grain of the wood containing more or less pitch or bark, and shall be classified as small, standard and large pitch pockets.

16. A small pitch pocket is one not over ⅛ in. wide.

17. A standard pitch pocket is one not over ⅜ in. wide, or 3 in. in length.

18. A large pitch pocket is one over ⅜ in. wide or over 3 in. in length.

19. A pitch pocket showing open on both sides of the piece ⅛ in. or more in width shall be considered the same as a knothole.

Wane.

20. Wane is bark, or the lack of wood, from any cause, on edge.

Sap.

21. White or bright sap shall not be considered a defect in any of the grades provided for and described in these rules, except where stipulated.

Miscellaneous.

22. Defects in rough stock caused by improper manufacture and drying will reduce grade, unless they can be removed in dressing such stock to standard sizes.

23. All lumber for uses described in these rules shall be inspected on the face side to determine the grade, and the face side is the side showing the best quality or appearance.

24. Chipped grain consists in a part of the surface being chipped or broken out in small particles below the line of the cut, and as usually found should not be classed as torn grain, and shall not be considered a defect.

25. Torn grain consists in a part of the wood being torn out in the dressing. It occurs around knots and curly places, and is of four distinct characters: slight, medium, heavy and deep.

The Secretary: We have with us Mr. McCarthy, purchasing agent of the Rock Island, who is a member of the Storekeepers' Association, and Mr. Waterman, president of the Storekeepers' Association, both of whom are interested in this report. I would suggest that the privileges of the floor be extended to these gentlemen.

J. H. Waterman (C. B. & Q.): This is not a manufacturer's specification. We conceived the idea of having a joint committee of the three associations, the Railway Storekeepers', the Master Car Builders' and the Master Mechanics', to adopt uniform specifications for lumber and thus assist the storekeeper and everybody else in receiving, inspecting and grading lumber. That the committee has done a great deal of work you will note from the report, and especial mention should be made of Mr. McCarthy, who has given it a great deal of personal attention.

C. A. Seley (C. R. I. & P.): I regard this matter of the lumber specifications as one of the most important additions to our literature. The matter of selection and choice of lumber has gotten to such a critical period that we need exact definition of the different kinds of lumber to be used and exact definition of the various gradings covering the entire country. The following minor corrections and changes in the specifications are suggested by Mr. McCarthy.

Paragraph 24:—It is generally recognized that loblolly pine is not suitable for car material. These specifications cover car material only. Paragraph 24 will lead to considerable confusion and controversy, especially the following sentence: "Long leaf pine is descriptive of quality, and if Cuban short leaf, or loblolly pine is grown under such conditions that it produces a large percentage of hard summer wood, so as to be equivalent to the wood produced by the true long leaf, it would be covered by the term long leaf pine." The term "large percentage" is vague. After a piece of timber is cut and delivered it would be very difficult to prove or even indicate under what conditions it was grown.

Paragraph 1:—Same objections to this paragraph as outlined above.

Paragraph 36:—Would recommend that the word "or" be inserted between "large" and "coarse." Make this item read as follows: "Rot and large knots or coarse spike knots."

Paragraph 37:—There might be some objection to including 8 foot and 9 foot lengths in car lining, although of course this could be provided for in specifying, particularly in ordering, as to the lengths ordered.

Paragraphs 37, 38, 39, 40, 41, 43, 44, 45:—All of these grades include the admission of firm red heart. This is about the only defect admitted that might be considered as a form of rot or decay, at least in the earlier stages, and might be objected to for car siding, lining, roofing and decking.

Paragraph 47:—This specification prohibits doty or rotten red heart, which is construed probably as admitting firm, red heart. On the ground that red heart in any form is the first stage of decay, it would seem that it might be objectionable, either firm or doty, and especially in car sills where strength is required.

Paragraph 46:—There might be some objection to including 8 foot and 9 foot lengths in car lining, although of course this could be provided for in specifying, particularly in ordering, as to the lengths ordered.

Paragraph 48:—This specification prohibits doty or rotten red heart, which is construed probably as admitting firm red heart On the ground that red heart in any form is the first stage of decay, it would seem that it might be objectionable, either firm or doty, and especially in car sills where strength is required.

Paragraph 49:—You will note the specifications as drawn call for ½ ft. full over the dressed sizes required. At the present time I think a number of roads are purchasing sills and framing ¼ in. full over the dressed sizes, and I give you below difference in price of 5 x 9 sill 36 ft. long, at $20.00 per M:

5¼ in. x 9¼ in. x 36 ft. = 144.2 = $2.88
5½ in. x 9½ in. x 36 ft. = 156.9 = 3.14 = 26.

If the sills are only cut ¼ in. full over the sizes, there would be places where they would not dress smoothly, but this might not be objectionable in the construction of the car, and further from the fact that sills will probably only be used hereafter for repairs.

Exhibit C:—These diagrams are not intended to represent the actual sticks, but simply theoretical conditions which show how the percentage of sap in hardwood should be measured.

Section V (C):—Objection might be made to the admission of any defect "on 20 per cent of the pieces in each car shipment." If the defect is one that is omitted or excluded on one piece, there should be no reason why it should not be the same on every other piece for the same purpose, inasmuch as each size is ordered for a specific purpose or part of a car and has an individual use. In a car loaded with large sizes and small sizes mixed, it would be very difficult to apply this rule satisfactorily to all parties on account of the various sizes and wide range of number of pieces of each that might be included in any one shipment.

Paragraph 43:—There might be some objection to including 8-ft. and 9-ft. lengths in car lining, although, of course, this could be provided for in specifying particularly in ordering as to the lengths ordered.

This list of modifications or suggestions has been gotten together since the report was put in print. I know somewhat of the arduous work that has been done by the committee, and the amount of expense and travel and study they have put upon it, and I doubt very much if it would pay us to go into an extended discussion of these details. In general, however, considering the importance of the question of having a lumber specification, or at least the start of one, I make a motion that this specification be put into the Recommended Practice of the association, together with notes covering the features or suggestions which have been read, so they can be in completed form, and that the committee be continued or made a standing committee.

J. F. DeVoy (C. M. & St. P.): I spent all the time I possibly could in assisting in this work. There is no man familiar with lumber but who can find fault with some portions of the report, and I do not believe that any explanation at this time will make the specifications any more clearly desirable. It has taken an awful lot of work, and it appears to me that the committee has done all in its power at this time to give you what it thought best, in a specification, for at least a starter, and I would like to see the report at least passed to Recommended Practice.

Mr. Seley: I move that the report of the committee, together with the suggestions that have been submitted, be referred to letter ballot as Recommended Practice of the association, and that the committee be continued.

Mr. Brazier: We are very much indebted to the Storekeepers' Association for the good work they have done. There must have been a tremendous lot of work on the report. I think the thanks of the association are due to the committee as well as to the Storekeepers' Association for the work they have done.

F. H. Stark (Pittsburgh Coal Company): Would it not be well to have the suggestions made by Mr. Seley referred back to the committee, so that it could be given the privilege of considering them and correcting the report accordingly. During the next twelve months the railways will have these specifications printed. The lumber dealers will have become accustomed to them, more or less, and it seems to me that it is placing a burden on the railways as well as on the dealers. There are one or two points that Mr. Seley has brought up, especially with reference to adding one-half inch to the finished dimension, which I think are excessive. If we could refer it back to the committee I am quite sure it would recognize those points.

Mr. Seley: The suggestions which I have submitted are not my own. They are the expression of the chairman of one of the committees which had the matter in hand. While I do not believe that any matter so extended as this specification would in all respects meet the necessities or the requirements of all the railways, yet we have a framework of a very fine definition and specification for lumber.

Mr. McCarthy: If this specification is accepted by the convention we will ask the various lumber associations to adopt it as their standard. They will print and issue it, and it will not be necessary for the railway companies to go to any expense; they can purchase lumber under these specifications or under their own, if they desire. If they will use these

specifications they will find it much easier to get the lumber, and I think they will get it cheaper. It is the intention to have a book printed showing the lumber specification adopted by the Master Car Builders' Association, and issue it to the trade.

The motion was carried.

F. W. Brazier (N. Y. C. & H. R.): I think many of us were very much surprised when we got our notices of the convention to find that we were going to have a morning and an afternoon session, so provided in the By-laws as to require notice a day in advance to make it one session. I would like to move that this article of the By-laws be changed to read: "The regular hours of session shall be arranged by the Executive Committee, and published on the programme for each meeting." Next year the Executive Committee can call us together the first day, from ten o'clock to half-past one, and, if necessary, we can have an afternoon session and convene the next day at nine o'clock. I would rather get to work early in the morning, get through and have the time in the afternoon, than to have the meetings called at ten o'clock. This will simply lie on the table, and next year, if you do not like it, you can kill it.

The motion was carried.

The President: As a result of the election, I declare T. H. Curtis elected president; A. Stewart, C. E. Fuller and D. F. Crawford, vice-presidents; John S. Lentz, treasurer; J. D. Harris, C. E. Fuller and C. A. Seley are elected members of the Executive Committee. As members of the Committee on Nominations: J. F. Deems, A. W. Gibbs, C. A. Seley, W. H. Lewis and J. F. Walsh.

Gentlemen, in turning over the gavel to my successor, I want to thank you for your attendance at this meeting and for the way in which you have assisted me during the session to conduct the business of the association, and also for the assistance rendered during the year in conducting the general business of the association. I want particularly to thank the members of the various committees for the work they have done. I now take pleasure in presenting your new president, T. H. Curtis.

President Curtis: I understand that before we adjourn E. M. Grove, chairman of the Supply Men's Association, desires to say a few words.

Mr. Grove: I wanted to say to your past president a lot of very nice things concerning the manner in which he has conducted the business of the association during the past year, and how well he has done it. We have all appreciated his good service, and personally I have thoroughly appreciated the very good offices that he has extended to the officers of the Railway Manufacturers' Association. His very harmonious treatment of us has lessened our labors. I want at this time, Mr. Clark, to present to you an emblem of our appreciation of that service, which I trust you will treasure, not from its intrinsic value, but as an expression of the good will not only of the members of this association, but also of the Railway Supply Men's Association. I feel that you have deserved it. We are very glad to have you receive it, and I know you will wear it with honor to yourself and credit to both associations; and now, sir, on the eve of your departure across the briny deep, we wish you God-speed, a pleasant journey and a safe return.

Mr. Clark: Gentlemen, I felt at the time of my election last year that I did not adequately express my appreciation of the honor conferred upon me, and I want to say to you that the sense of the honor then conferred has been growing upon me ever since. The work of the association is exceedingly important, and as I indicated a moment ago I have had a growing appreciation of that fact. I feel in retiring that you have done me a great honor. I appreciate it, and I appreciate the emblem which has been presented to me, and assure you that I shall always wear it with great pleasure, and feel honored in being able to wear it. I thank you, gentlemen, and the gentlemen of the Railway Supply Men's Association, for the kind words of their president, Mr. Grove.

Mr. Brazier: Before we adjourn I would like to move that a vote of thanks be extended to Mr. Clark, our retiring president, for the dignified and able manner in which he has presided over our meetings. Associations of this character are judged by the men who are at their head, and the M. C. B. Association has been honored by the fact that Mr. Clark has been its president.

The motion was unanimously carried by a rising vote.

At stations in Belgium, where cartage services are organized and within the boundaries served, the railways undertake the collection and delivery of freight either on their own account or by their agents.

Conventionalities.

Who M. Wilson?

Herbert I. Lord, manager of sales of the Detroit Lubricator Company, arrived Wednesday.

E. W. Grieves, past president of the Master Car Builders' Association, is attending for the twenty-fifth year.

This is the twenty-third time James Timms, of Excel coupler fame, has attended the M. C. B. and M. M. Conventions. A pretty good record.

Mr. and Mrs. E. A. Laughlin, Chicago, are among recent arrivals. Mr. Laughlin is vice-president and general manager of the Joliet Railway Supply Company.

C. L. Humpton is typical of the Parkesburg iron tube which he sells. He is round and uniform in shape, and though working day and night, does not pit nor corrode.

Mr. and Mrs. Mark R. Ross, Mr. and Mrs. R. C. Vilas and Mr. and Mrs. T. Will Johnson, all Pyle-National Electric Headlight people, are stopping at the Marlborough-Blenheim.

Judging from what one hears on all sides, it would seem as though everyone but the editor and his bunch of menials were the only ones who did not motor to Atlantic City.

The editors extend their thanks to the plain, ordinary supply man, whose badge with red center and minus bars and other insignia of office stilled the blast of brass in front of the statuary. We had no idea it was so easy!

There was considerable speculation at the M. C. B. Ball as to whether or not Postlethwaite's sweet peas were real. He certainly looked in the pink of condition, however; and as a human fashion plate he was without a peer.

Wanted—Information as to the identity and whereabout of the party who turned a stray cat loose in Bed Stafford's room at Niagara Falls during the Boilermakers' convention. Apparently other things happened to Staff besides his dream.

John R. Blakeslee, president of the Ajax Manufacturing Company, staggering under the honors of a great trap-shooting contest in his home city of Cleveland, arrived in Atlantic City Wednesday, and left for home Friday.

Charles L. Sullivan, sales manager of the Cowles-MacDowell Engineering Company, is registered at the Dennis. Mr. Sullivan has an uninterrupted record of attendance at the conventions covering a period of many years.

According to the way P. H. Wilhelm counts, this is his nineteenth convention. A serious accident put him out of business for a while, but he is here on the ground, this time in the interest of Walter Macleod & Company.

It is reported that J. J. McCormick, of the Crosby Steam Gage & Valve Company, who has long been a lonely bachelor, in Chicago, has recently joined the ranks of those to whom Benedict is the patron saint.

E. B. Leigh, president of the Chicago Railway Equipment Company, is attending the conventions and is introducing his new assistant, Arthur Wyman. For the genuine blue-ribbon brand of courtesy, we can warmly recommend Mr. Wyman.

Two men, evidently strangers at the conventions, were noticed yesterday morning inquiring for the location of "Th' MacHinery Hall." It turned out that they were Messrs. Hooley and Dennissey from Tchicago.

Raymond Pilson, of the Chicago Railway Equipment Company, again presents some wondrous and natty things in coat cuffs. Take a peep the first time you have a chance; and if the chance does not present itself, search.

D. W. Hawksworth, mechanical engineer of the Hutchins Car Roofing Company, is attending his first convention. Mr. Hawksworth, it will be remembered, was formerly assistant district manager and mechanical engineer of the Detroit plants of the American Car and Foundry Company.

Dan Brady insists that the portrait of William Garstang which appeared on page 1589 in the *Daily* of Friday, is an error on the part of editor or printer. He declares that it represents R. D. Smith. But those who have seen Garstang this year say Brady has another guess coming.

Railway life can't be so severe an existence as some men seem to wish to make it appear. Lots of men grow big and heavy on it—witness F. H. Eddy, of the Boston & Maine, who has been on the East Fitchburg jobs ever since long before Brazier left it.

Frank Moore and Will Gibson were standing on the Boardwalk in animated conversation when along came Magee and Telford, arm in arm. Says Magee, "Why don't you fellows stop hollering and stand side by side so that you can hear each other?"

George M. Basford, who some years ago abandoned the leanness of newspaper business for the flesh-pots of the locomotive builders, took an early opportunity to call at the office of the *Daily* and leave a loving message for some of his former fellow-workers.

"Cromwell, Protector of the Commonwealth"—that is what Oliver C. has been of that part of the common wealth of the Baltimore & Ohio represented in the records of the mechanical department for so many years that he is alleged to have himself forgotten the number.

It's going some when the vice-president of a concern like the Safety Company has to carry a portable buoy with which to find his way home. But, all joking aside, Pye certainly has John Chamberlain's cane beaten all to smithereens. It's loaded, too, and is equipped with a pinch light.

H. G. McConnaughy, a real worker on the staff of the Dearborn Drug & Chemical Works, sustained a slight accident Wednesday, necessitating an enforced rest of a day or so. He slipped on the wet surface of the Boardwalk and strained his back. His return to duty, however, was not long delayed.

H. H. Vaughan, assistant to the vice-president of the Canadian Pacific, and last year president of the Master Mechanics' Association, arrived in time to attend the Master Car Builders' ball. It is not his intention to attend the International Railway Congress, as has been reported.

The attractiveness of the room upstairs over the entrance hall of the pier, in which refreshments were served during the Master Car Builders' Ball, has been enhanced this year by the use of a considerable number of fine Oriental rugs judiciously distributed over the floor.

E. W. Pratt, assistant superintendent of motive power of the Chicago & Northwestern, is one of the men who early cultivated the habit of taking his wife with him to the conventions. In the earlier days Mrs. Pratt contributed greatly to the social success of the Air Brake Association, and is no less helpful in the larger field afforded by the associations now in convention.

C. E. Chambers, the new superintendent of motive power of the Central of New Jersey, bears his honors as modestly as he did the burden of the Elizabethport shops. He has the advantage, so far as organization is concerned, of the example of an efficient predecessor.

Charlie Castle, erstwhile Annanias of the Liars' Club, but now manager of the railway department of the U. S. Metal & Manufacturing Company, arrived Tuesday. Charlie has been in training for a month at the Aquarium getting in shape to land some solar plexus arguments on the habits and customs of the "Barol" leeches.

Mrs. Emily A. Carr, mother of Vice-president George R. Carr, of the Dearborn Drug & Chemical Works, expected to attend the conventions with her son, but accidentally fell and sustained a broken arm in her Oak Park, Chicago, home last Thursday. Mrs. Carr will be remembered as an attendant last year.

William B. McCaleb, superintendent of the Philadelphia division of the Pennsylvania, reached Atlantic City Thursday morning. He spent the time between his arrival and departure yesterday afternoon in looking over the exhibits. While an operating officer, Mr. McCaleb found much of interest to him on the pier.

The Fairbanks, Morse crowd is not, as a rule, foggy; but the weather of the first two days of the convention had its effect. Those who ventured out near the end of the pier observed Taylor and Akers shoveling the fog into tanks and thus discharging it, through standpipes, into the shallow blue sea.

Since the genial E. G. Buchanan, vice-president of the Carbon Steel Company, acquired Harry W. Finnell, the humorously inclined speak of the "large edition" made to the sales force of the steel company. This increase is indeed wonderfully sturdy and happy, although Harry says he has "fallen away to a ton."

G. E. Carson, the genial car builder of the New York Central at West Albany, N. Y., who had expected to arrive with his family on Monday, was prevented from doing so by a very sad accident; the sudden death of his son. The young man, who was about 16 years of age was accidentally hit with a golf ball while playing with a companion, and instantly killed.

Mr. and Mrs. Frank T. Boydston, Chicago, are enjoying their convention visit. They are stopping at the Chalfonte. Mrs. Boydston was formerly Miss Anderson, daughter of George T. Anderson, superintendent of the New York Dispatch Refrigerator Line, and attended the conventions for several years. Her many friends are pleased to see her at Atlantic City.

E. M. Herr, vice-president of the Westinghouse Electric & Manufacturing Company, was able to spend about three hours at the conventions on Wednesday evening and expressed himself as highly pleased with the appearance of the exhibits. The large staff of representatives of the Westinghouse companies succeeded in catching him at Philadelphia and dragged him away from his pressing duties for that length of time.

The Farmer on the Entertainment Committee seriously objects to being printed as Frank. He was waiting in line at the door of the editorial sanctum early the following morning; and when his turn came he called us a bunch of hoboes and a lot of other names equally as complimentary. He concluded by saying that Tom was bad enough; but that he'd rather be called Rube, than Frank.

Robert F. Carr, president of the Dearborn Drug and Chemical Works, accompanied by his brother, Dr. Charles Carr, Chicago, is taking a European trip and will not return before September 1. He will attend the International Railway Congress at Berne. Mr. Carr's presence at the conventions will be missed, as he was always to be found one of the leaders among those that "do things."

The editors acknowledge with thanks the thoughtful offering of roses received from an admirer Thursday evening. At first blush (and even an editor can blush) we were deeply touched by this unexpected appreciation of our efforts; then came the sombre thought that perhaps the gift was occasioned by the conviction that such activities as ours must have a fatal result. So it was with some relief, rather than otherwise, that we learned that the bell-boy had made a mistake in gender.

Dwight C. Morgan, of Kittanning, Pa., vice-president of the Pittsburg & Shawmut, is among the visitors on the pier. Mr. Morgan was formerly chief engineer of the Minnesota Railway Commission, and in that capacity made a physical valuation of the railways of Minnesota two years ago, which at once was recognized by those who had followed the subject of valuation as the fairest and most thorough piece of work of the kind that had been done up to that time. In his present position he is the executive head of the Pittsburg & Shawmut.

Referring to the item published on Thursday morning on the orange-colored blossoms on the pergola, our friend Conger wants to know whether the "pumpking" referred to is a new kind of vegetable or whether it is a euphemistic reference to the chief of the Atlantic City fire department. As a matter of fact, this is another of those cases where a printer makes two jokes grow where only one grew before; and one of them is on us. But what does an injector expert and an airbrake sharp know about flowers, anyway?

Three wise men out of the Northwest—H. S. Bryan, John Tonge, and J. J. Conolly—are seldom missing from the conventions; and though Mr. Tonge is taking life very comfortably these days, he is keeping up his share in the representation of the section with which his name has so long been associated. As for Bryan, there wouldn't be anybody on the North Shore if he were not there; and the upper peninsula of Michigan would waver in the balance if Conolly went anywhere else.

Some closely contested games of bridge have been going on in the last few days among the ladies at the Marlborough-Blenheim. On Wednesday afternoon the contestants were Mesdames Phillips, Gold, Fuller, Miner, W. E. Weatherly, R. H. Weatherly, Flory, Johnson, Langston, Elliott, Humphrey, Lyonmark, Schaffer, Fowler and Miss McIntyre. The first prize was won by Mrs. Gold. On Thursday two tables were engaged, and the participants were Mesdames L. R. Phillips, W. E. Weatherly, George L. Fowler, Alexander Telford, J. O. McCloskey, W. H. Miner, W. B. Firman and C. E. Fuller.

The item published on Thursday morning in reference to Daniel M. Brady appears to have been what is known in some newspaper offices as a "lobster" story. By way of explanation: Two men, disputing about the definition of a lobster, submitted the question to a professor of biology. The definition as submitted was: "A lobster is a fish with a red shell that crawls sideways." The professor said: "Yes, that is an excellent definition, except that a lobster is not a fish, its shell is not red and it does not crawl sideways." The application is, that Mr. Brady never comes to Atlantic City except by the Pennsylvania, and therefore it did not require great modesty on his part to elude observation on a Central of New Jersey train; but if he had, how could Vought overlook his presence? Again, it is probably up to Vought.

There is nothing more refreshing and entertaining than to reminiscence with Albert Waycott. Mr. Waycott grew up in the supply business in the good old days when we didn't have constitutions (that is, printed ones) and bylaws. If someone wanted someone put in some office, and the candidate succeeded in passing the inspection of the back porch committee, of which Albert Waycott was the chairman, and Harry Frost a close second with some claim to the title of vice, that candidate's election was at once assured. We have candidates nowadays and they do seem to get elected all right; but there's fuss and feathers—and we do recall that some of the latter have been known to fly.

A wail from the Pressed Steel Car Company: "Has anybody here seen Victor Von Schlegell? His valet arrived with his baggage, but where, oh! where, is Von?" The only possible clue obtainable, and that a slight one, is a note alleged to have been left by the aforesaid valet: "Mr. Von Schlegell:—I hope that you will find everything O. K. You can see that I followed your trunk right to your room. I came over for the ride and I enjoyed it very much. I will leave here on the 9 o'clock train for New York, and before I go I am going downstairs in the valet room and have a good dinner on you, and hope that you will not be angry with me." But, meanwhile, where is Von?

During the informal dance at the Marlborough-Blenheim Wednesday night, some one whose identity could not be discovered suddenly thrust a neatly wrapped package into the hands of C. E. Fuller, Superintendent of Motive Power of the Union Pacific. The recipient of the gift was rather surprised at the action of the supposed "souvenir friend," but, nevertheless, took time to examine the contents of the package, and was the more confused over the affair on discovering a brand new pair of socks, bright green, in color. Mr. Fuller and his friends enjoyed a hearty laugh over the affair, but he is still speculating over the identity of the donor and the significance of the gift. He promptly accused Stanley Midgley, Fred. Brazier and others of like character, of guilty knowledge of the joke (?)—but all protested complete ignorance. If any of the readers of the *Daily* can supply information which will throw light on the mysterious affair, the favor will be much appreciated by Mr. Fuller and his many interested friends. We understand that the proceeding will not be brought up for official action before the M. M. Association.

We came very nearly forgetting it, and probably would have done so, had we not been reminded. So, lest it be forgotten by others, it is hereby stated on his authority, that 135 years ago yesterday, John Chamberlain, that patriotic citizen of umbrella fame, fired the shot at Bunker Hill that was heard around the world. That is, he pulled the string that fired the shot. In celebration of the event, he has "left his old umbrel' to home:" and, decorated with the American flag, which he thus established in the home of the free and easy, he has come all of the way from Boston town to announce the fact and celebrate the event with his friends. He was ably assisted by Frank A. Barbey, who knows more about pulling legs than pulling strings.

CORNELL DINNER.

Place, Hotel Chelsea.

Time, 7.30 tonight.

To be present, all Cornellians in Atlantic City who registered at the booth of the *American Engineer and Railroad Journal*, or who get word in some way to the secretary before 1 o'clock today. Prof. Barr will probably be present and a special musical program is being arranged by Mr. Thomas. The crowd will attend the vaudeville show after the dinner.

THE MILITARY EUCHRE.

As promised by the entertainment committee, the military euchre last night in the ballroom was a most entertaining and attractive event. The prizes, 36 for ladies and 36 for gentlemen, were attractively displayed in the middle of the room and the 248 tables were arranged in rows of 16 tables each through the length of the room except for a few necessary shorter rows in the middle. The table at the southwest corner was designated as head table and at the conclusion of each game the couple facing the end of the room moved to the next table and so on throughout the game, whether winners or losers. Eight games were played, and the successful contestants were given small silk flags, one for each game. The winners of eight flags, or of the largest number, were given the choice of prizes, and cases of tie were decided by lot.

The members of the committee in charge were all in uniform with caps decorated with crossed swords and the monograms of the two associations. The receiving committee at the entrance, five men, were in command of Ross Hayes armed with a sword and the others carried guns. Refreshments, punch, lemonade and ice water were served at the tables by attendants.

The judges were Messrs. Grove, Wildin, Post, Ross and Turner.

The decorations were illuminated shields at the south end of the room with initials of the associations and along the sides a series of flags were tastefully draped. The winners of prizes were as follows:

Tinted marble figure, Mrs. J. S. Maise.
Bronze figure, "Child Standing on Chair," Mrs. T. M. Ramsdell.
German flower centerpiece, Mrs. De Vilbiss.
Brass fern dish, Mrs. Joseph Quigley.
Teplitz basket, Mrs. W. H. Miner.
Hammered brass coffee pot, Miss J. C. Lindstrom.
Japanese wicker flower basket, Mrs. W. E. Maher.
Tiffany vase, Mrs. R. H. Weatherby.
Cut glass cologne bottle, Mrs. A. S. Sternberg.
Cut glass mayonnaise dish and plate, Mrs. Chas. Shults.
Crystal vase, Mrs. C. A. Dunkelberg.
Cut glass compote and flower holder, Mrs. L. R. Phillips.
Bohemian water bottle, tumbler and tray, Mrs. G. E. Molleson.
Roseville dresser set, Mrs. G. Caleb.
German asparagus set, Mrs. M. E. Davis.
Doulton tea set, including teapot, sugar and cream stand, Mrs. E. F. Chaffee.
Mettlach plaque, Mrs. Henry Bouton.
Copper roll tray, P. P. Sturdevant.
Mahogany serving tray, Mrs. H. C. Edson.
Crystal candle sticks with candles and shade, Mrs. Wm. Miller.
Brass candle sticks, Mrs. D. C. Noble.
Green bronze electric lamp and leaded shade, Mrs. R. W. Burnett.
Brass boudoir electric lamp, Mrs. T. H. Goodnow.
Brass smoking set, F. C. Cleaver.
Brass book rack, G. A. Schmoll.
Brass smoking tray, J. A. Meaden.
Brass and hammered copper umbrella jar, B. P. Flory.
Brass gong, Mrs. F. N. Grigg.
Brass patent ash tray, E. E. Silk.
Alabaster cigar box, George Riley.
Library knife and shears, G. N. Caleb.
Brass cigar lighter, J. M. McCarthy.
Mahogany and brass cigarette box, Wm. E. Maher.
Elephant gong, T. M. Ramsdell.
Hammered brass and copper loving cup, L. E. Jones.
German tankard, H. E. Passmore.
Man's traveling case, John S. Mace.
Man's cane, F. P. Cheeseman.
Thermos bottle, H. Boutet.
Pair military brushes, M. E. Towner.
Shaving set, A. S. Sternberg.
Box of cigars, B. V. Johnson.
Brass basket, Mrs. James Dorney.
Alabaster vase, Mrs. J. M. McCarthy.
Lady's parasol, G. W. Wildin.
Lady's parasol, Helen M. Little.
Lady's veil, Miss Jessie McIntosh.
Lady's bracelet, Mrs. A. T. Stewart.
Porcelain and copper Dutch serving tray, J. S. Seley.
Rockwood ash tray, M. E. Davis.
Genuine bronze figure ("The Kiss"), T. P. O'Brian.
Benares glass tobacco jar, E. F. Chaffee.
Cordial set, including 6 glasses, decanter and brass tray, H. S. Griffith.
Cut glass brandy bottle, L. R. Phillips.
High ball set, including decanter, 6 glasses and tray, C. E. Foyle.
Doulton pitcher, J. F. O'Connor.
Copper and brass serving tray, A. Gordon Jones.
Traveling bag, H. O. Fettinger.
Centerpiece for flowers, Mrs. T. H. Russum.
Lady's garniture, Mrs. F. H. Shaeffer.
Wicker and tapestry tray, Mrs. F. W. Chaffee.

The other prizes were selected by Mrs. E. S. Toothe, Mrs. H. S. Griffiths, Mrs. C. L. Jacobs, Miss Munger, W. Boynton, C. A. Dunkelberg, Joseph Quigley, C. W. Sherman and G. H. Bussing.

Among the early arrivals and late stayers is B. H. Gray, superintendent of motive power of the New Orleans, Mobile & Chicago. Mr. Gray is at the St. Charles.

A number of ladies have experienced considerable unpleasantness in connection with the use of roller chairs on account of the insolence of the pushers when they have been required to travel more than a few blocks or when they thought they had not been tipped with sufficient extravagance. The attention of members of the transportation committee has been called to the matter, and they express a desire to deal with any trouble of this sort. If any lady is subjected to the slightest discourtesy, the matter should be at once reported to some member of the transportation committee, with the man's number, as this is the only means of locating the offender. Such a remedy will then be applied that the same individual will have no opportunity to repeat the offense, and the example will be likely to debar others from similar

The ingenuity displayed by the sharp-witted daily newspaper merchants along the Boardwalk in cleverly naming the city in which you reside and offering you your home paper at the usual selling price, plus one hundred per cent, accounts for the extremely large demand for the official registration list. In a second of time one of these urchins will get the number of your badge, look you up in his registration list, call you by name, and, after a pleasant "Good morning, sir," will offer you your home paper and insist that you take it. Verily, the Atlantic City newsboys can well take care of themselves—and their families.

It looks a little ridiculous to say, as was said in an editorial paragraph on Friday morning, that "Some things we have always with us, the *iron* and loading long material, for instance." It is therefore not amiss to state that what the editor wrote was "poor"—that is, what he said was all right but the actual writing was "poor."

H. C. McCarty, president of the Coale Muffler & Safety Valve Company, is making his twenty-seventh annual visit to the M. C. B. convention. Mr. McCarty was master car builder on the Pennsylvania for twenty-seven years, and has been a member of the M. C. B. Association since 1882.

M. C. B. REGISTRATION.

Barry, J. J., M. M., Norfolk & Western R. R., Windsor Hotel.
Crone, S. A., Past. Prest., M. C. B. Assn., Dennis Hotel.
Davis, J. H., Elec. Engr., B. & O. R. R., Imperial Hotel.
De Vilbiss, G. J., S. M. P., Hocking Valley Ry., Traymore Hotel.
Durham, Geo., M. M., L. & N., Chalfonte Hotel.
Ettinger, R. L., C. M. E., Southern Ry. Co., Windsor Hotel.
Harris, Tiffin, Div. Car Foreman, Can. Pac. Ry., Rudolph Hotel.
Higgins, Samuel, G. M., N. Y. N. H. & H. R. R., Shelburne Hotel.
Howard, Jno., S. M. P., N. Y. C. & H. R. R., Marlborough-Blenheim Hotel.
Haugh, Harry, M. M., Brownstone Middletown Ry., Dennis Hotel.
Keiser, C B., M. M., P. R. R., Traymore Hotel.
Kells, Willard, M. M., Lehigh Valley R. R., Cordell Hotel.
Knox, W. J., M. E., Buffalo, Rochester & Pittsburg Ry.
MacBain, D. R., S. M. P., L. S. & M. S. Ry., Marlborough-Blenheim Hotel.
Mann, J F., Gen. Car For., P. M., Shelburne Hotel.
Mengel, Jno. C., M. M., Penn. R. R.
Moore, Edw. W., Pres., Everett-Moore Syndicate, Marlboro-Blenheim Hotel.
Montgomery, H., S. M. P. & E., Bangor & Aroostook R. R., Brighton Hotel.
Mussey, Wm. H., A. E. M. P., Long Island R. R., Runnymede Hotel.
Shreve, W. J., M. M., Minneapolis & Rainy River Ry., Bothwell Hotel.
Smart, Geo. E., Div. Car Foreman, Can. Pac., Young's Hotel.
Tinsley, R., Mgr., Pullman Car Works, Dunlop Hotel.
Vaughan H. H., S. M. P., Can. Pac. Ry. Co., Marlborough-Blenheim Hotel.
Waters, J. J., Supt. Mech. Dept., National Rys. of Mexico, Marlborough-Blenheim-Hotel.

M. C. B. GUESTS.

Adams, A. C., M. M., N. Y. N. H. & H. R. R., Haddon Hall.
Akarman, John, Supt., Atlantic Shore Line Rwy.
Allman, Wm. N., Draftsman, B. & O. Kenberton Hotel.
Armstrong, L. N., Asst. Rd. For. Engines, W. J. & S.
Atkinson, E. M., Agent at Atlantic City, West Jersey & Seashore Ry.
Avis, Samuel H., Agt., D. & A. T. & T. Co.
Bachert, Edgar, Foreman, C. R. R. of N. J., Miller Cottage.
Baird, A. C., Machinist, Amb. Div. P. R. R.
Barrett, C. D., Asst. M. M., P. B. & W.
Bassett, Wm., Traymore Hotel.
Bawden, Wm., M. M., Terminal R. R., Watkins Hotel.
Beaumont, H. A., For. Fgt. Car Rep., P. R. R.
Bennett, J. D., Foreman, C. R. R. of N. J., Edison Hotel.
Benter, C. E., Loco. Engineer, P. R. R., Haddon Hall.
Berry, Norman, M. M., Rio de Janeiro Ry., Light & Power Co., Shelburne Hotel.
Beyer, W. F., Foreman, P. R. R., Ralston Hotel.
Billau, L. S., Asst. Eng., B. & O., Arlington Hotel.
Blanchard, W. E., Ch. Cl. S. M. P., P. R. R., Chalfonte Hotel.
Bosworth, W. M., Draftsman, B. & O., Kenderton Hotel.
Brazier, W. S., Trav. Eng., Boston & Maine, Marlborough-Blenheim Hotel.
Burch, J. J., Asst. Engr. Tests, N. & W. R. R., Dennis Hotel.
Butler, James, Wrecking Master, W. J. & S. R. R.
Caldwell, F. M., Marlborough-Blenheim Hotel.
Cannon, J. M., Manager, Wilmington Shops, The Pullman Co., The Wiltshire Hotel.
Cartwright, D. J., El. Eng., Lehigh Valley, Edison Hotel.
Cassidy, J. P., Form. Frt. Car Repairs, P. R. R., W. J. & S. Ry.
Churchill, W. H., Air Brake Instructor, W. J. & S.
Connor, F. E., Asst. Pur. Agt., Santa Fe, Marlborough-Blenheim.
Connor, Harry E., Asst. Pur. Agt., Sante Fe, Marlborough-Blenheim Hotel.
Conrad, H. M., Foreman, Penna. R. R., Flanders Hotel.
Cosgrove, H., Foreman, Penna. R. R., Flanders Hotel.
Cory, J. M., Dennis Hotel.
Crossman, T. E., Official Stenog., Runnymede Hotel.
Davis, W. E., Foreman Vice Shop, P. R. R.
Dix, C. E., Asst. Pur. Agt., P. R. R.
Doemling, Gustave, Gen. For., Pullman Co.
Downs, J. H., Asst. Rd. For., W. J. & S. S., Ethlyn Hotel.
Downs, J. K., Eng. House For., P. & R., Ramsey Hotel.
Downs, W. E., P. R. R.
Driscoll, F. E., Pur. Dept., Erie R. R., Dennis Hotel.
Dwier, Wm., Phila. R. T. Co.
Eicholtz, G. W., Foreman Freight Car Inspectors, Penna. R. R. Co.
Erb, C. W., S. K., Trenton Shops, P. R. R.
Felton, H. W., Supt. Ferries, A. C. R. R.
Fisher, C. D., P. R. R., Bouvier Cottage.
Triggs, C. H., For., P. B. & W., Strand Hotel.
Fritsch, J. A., Shop Foreman, Pgh. Div., P. R. R., Flanders Hotel.
Garabrant, W. P., Road Form. of Engines, Jer. City, P. R. R., Haddon Hall.
Garaghty, W. C., Air B. Inst., B. & O.
Gillis, H. A., Mech. Eng., Dennis Hotel.
Gonnerman, W. K., Gen. Car For., B. & O., Dunlop Hotel.
Goodrich, Wm., Gen. Supt., Bartlett Hayward Co., Traymore Hotel.
Graham, H. E., Supt., P. A. & McK. R., Strand Hotel.
Greenwood, H. F., Genl. Foreman Loco. Dept., M. & W., Windsor Hotel.
Grim, C. B., For., P. & B. R. R.
Hall, C. B., Inspector Pur. Dept., P. R. R.
Hartman, F. B., Insp., So. Ry., Penhurst Hotel.
Healey, Frank, V. P. & G. M., Interboro Rapid Transit Co., Shelburne Hotel.
Healey, Master Frank C., Interboro Rapid Transit Co., Shelburne Hotel.
Heckman, A. V., Ch. Cl. to Asst. S. M. P., N. & W. R. R., Windsor Hotel.
Heim, J. F., W. J. & S. S., Ethlyn Inn.
Henry, J. M., M. M., P. R. R.
Himmelberger, C. M., F. T. M., P. & R., Worthington Hotel.
Himmelberger, Frank, Worthington Hotel.
Hoffman, John, Phila. & Reading Ry., Watkin's Hotel.
Hinkle, H. M., Asst. Rd. For., W. J. & S. S., Ethlyn Inn.
Hoffman, P. H., Jr., Material Agt., P. R. R.
Houser, John W., M. Ctr., Cumberland Valley R. R.
Humphries, Frank, Phila. R. T. Co.
Jackson, C. H., Foreman Car Insp., P. B. & W., Maryland Div., Bon-Air Hotel.
Jaynes, R. T., M. M., Lehigh & Hudson R. R., Traymore Hotel.
Jester, J. G., Disbursing Officer, Panama Canal, Brighton Hotel.
Kane, James, Foreman, P. R. R.
Kerrigan, Frank J., Ch. Cl., M. M., P. R. R.
Koch, Geo. B., Foreman Test Dept., P. R. R., Traymore Hotel.
Koehler, S. C., Asst. Ch. Clk. Gen. For., P. R. R., W. J. & S. Ry.
Lane, R. H., Inspector Test Dept., Southern, Chalfonte Hotel.
Lewis, S. M., Train Master, N. & P. Belt Line R. R., Arlington Hotel
Lowther, H. F., Pur. Dept., D. L. & W., Marlborough-Blenheim Hotel.
McCoubrir, R., Phila. R. T.
McFary, Alex., Chief Electrician Car Dept., N. Y. C. & H. R., Rudolf Hotel.
McMinn, A., P. R. R.
McMurry, W. R., Asst. Chf. Clk., N. Y. C., Pennhurst Hotel.
McQuown, W. I., Clerk Supt. Tel., Penn. Lines, Levan Hotel.
MacBain, D. R., S. M. P., L. S. & M. S., Marlborough-Blenheim Hotel.
Mackrow, H. A., Union Tank Line, Young's Hotel.
Martin, Chas. W., Gen. Air Brake Insp., P. R. R., Jer. City, Haddon Hall.
Maxfield, H. H., M. M., P. R. R., Chalfonte Hotel.
Miller, A. C., M. M., Texas Midland.
Miller, B E., M. P., D. L. & W., Young's Hotel.
Moore, E. S., V. P., Rock Island, Brighton Hotel.
Moore, J. F., Dunlop Hotel.
Morris, W. W., Pur. Dept., P. R. R.
Muller, J., Jr., P. R. R., Chalfonte Hotel.
Munger, E. T., Gen. Supt., H. & M. Ry.
Myers, W. S., Machinist, P. R. R., Renovo, Ralston Hotel.
Narr, H. W., Ch. Clerk to Supt., A. C. R. R.
Noble, H. S., Motive Power Insp., P. R. R., Haddon Hall.
Nutt, A. S., Bouvier Hotel
Oliver, R. G., M. M., Phila. R. T. Co.
Patterson, Philip, Clerk, P. R. R., Camden Shop.
Pietsch, T. A., Loco. Insp., B. & O., Laurel Hotel.
Plummer, W. P., Pur. Agt., Mex. N. W., Shelburne Hotel.
Potts, C. H., M. M., P. R. R., Renovo.
Powers, M. J., M. M., D. & R. G., Arlington Hotel.
Purt, A. F., Penna. R. R., Bouvier Hotel.
Reeder, Wm., Foreman Car Trimmer, C. R. R. of N. J.
Reeve, W. K., Trav. Frt. Agt., N. Y. C. & H. R. R. R., Ponce de Leon Hotel.
Rice, W. L., Gen. For., P. & R., Monticello Hotel.
Rich, S. W., Foreman Wheel Shop, P. R. R.
Richardson, F. E., Air Brake Insp., B. & L. E. R. R., Monticello Hotel.
Ripley, A. P., Marlborough-Blenheim Hotel.
Roberts, A. L., M. E., Lehigh Valley.
Robins, J. B., Foreman, C. R. R. of N. J., Edison Hotel.

Rossiter, G. W., Gen. For., Washington Ter., Ellwood Hotel.
Runkle, Chas., Spec. Pass. Agt., Phila. & Reading R. R., Ponce de Leon Hotel.
Sandhas, H. L., Instructor, C. R. R. of N. J.
Sandman, A. G., Ch. Draughtsman, B. & O. R. R.
Scheifele, John, Asst. R. F. E., P. & R., Osborne Hotel.
Sheridan, R. J., Chief Clerk Mgr. Pur. S., N. Y. N. H. & H., Young's Hotel.
Shultz, J. C., Marlborough-Blenheim Hotel.
Slinker, Chas., For. Blacksmiths, Long Island Ry.
Smith, C. B., D. M., D. & A. T. & T. Co.
Smith, J. A. B., Rear Admiral, U. S. Navy.
Stewart, A. F., M. M., C. & O., Traymore Hotel.
Stewart, H. A., Supt. Shop, Armour Car Lines, Marlborough-Blenheim Hotel.
Street C. F., Marlborough-Blenheim Hotel.
Suhrie, M., Special Engr., P. R. R.
Tippett, W. E., Repairman, P. B. & W., Lexington Hotel.
Towner, M. E., P. A., Frisco Ry., St. L., Shelburne Hotel.
Turner, J. A., Pur. Dept., Southern Rwy., Brighton Hotel.
VanDyke, J. W., Vice-President, Union Tank Line, Dennis Hotel.
Vyne, A. G., Foreman Engine House, P. R. R., Haddon Hall.
Wagner, F. H., Chief Engr., Bartlett Hayward Co., Traymore Hotel.
Walsh, Chas. E., Asst. Ch. Cl. Pur. Dept., Penna. Co., L. W. P., Traymore Hotel.
Warnock, H. R., Gen. For. Loco. Dept., Monongahela, Lexington Hotel.
Waters, J. J., Jr., Marlborough-Blenheim Hotel.
Weaver, A. B., Stenog., Runnymede Hotel.
Wells, Clarence, Sec., Mer. N. W., Shelburne Hotel.
West, Chas. H., Div. Boiler Insp., P. R. R., Amboy Div.
Wieseckel, G. F., M. M., B. & O., Waldorf Hotel.
Williams, D. A., Gen. Storekeeper, B. & O. R. R. Co., Traymore Hotel.
Wilson, Robt., P. & R.
Wise, Howard E., Ch. Insp. Lumber Pur. Dept., P. R. R., Haddon Hall.
Witman, Jas. K., Supt. M. & S., P. & R. Ry., Shelburne Hotel.
Young, W. D., Yardmaster, P. R. R. Co., Elberon Hotel.

HIGH SPOTS IN THE LIFE OF A DAILY.

BY FRANCIS W. LANE.

III.

Something was said awhile back about some extraordinary interpolations in the series of 24 annual bunches of daily issues. The first of these was the publication of the daily journal of the International Railway Congress in Washington in 1905. This amounted to 10 daily papers in duplicate, one series in English and one in French, or 20 issues in all. As a matter of fact, there was a preliminary issue in each language, giving the names, official titles and addresses of all delegates. This was an extra before the event. It made 22 issues of the paper in all. Aside from the advance work of a business nature which was carried on in this country and in Europe for a year and a half before the opening of the Congress, the most strenuous preliminary work was the conversion of the snappy, incisive American-conceived advertisements into the somewhat more suave diction to which French readers are accustomed. There were 100 pages of these advertisements in the English edition, and 84 pages of them were rendered into French. On this work two or three real Frenchmen, who knew the everyday parley-voo, but little technical French, and one imitation Frenchman, who was supposed to know—and did before he got through—some technical stuff in both English and French, were employed constantly for about six weeks. The total number of advertisements to be translated was, of course, much greater than is indicated by the number of pages above noted, not only from the fact that pages were split up into halves, quarters, eighths and sixteenths, but because patrons were permitted to furnish different copy for each day's issue. For instance, the combined Westinghouse companies had eight pages in each issue and changes were made often enough to bring the number up to 40 or 50 pages of different copy. Many advertisers had different copy for each day, and it is as much work to translate an inch advertisement in small type as to do a page of ordinary display. The translation table looked like a lexicographer's study. In perhaps half a dozen cases foreign advertisers furnished copy in German, which involved double translation. Notwithstanding the multitudinous chances of error, and in most cases no opportunity for reading French proof on the part of advertisers, it may be said that only two complaints are remembered as arising from this source. One of these was on account of the doubtful use of a single French preposition in an advertisement for which German copy had been supplied, and for the claimed error in which the advertiser demanded and got a rebate of $85 when settlement day came. The other was an error of fact in calling a Yale & Towne door-check "pneumatique" when it was not pneumatique at all.

Toward the last of the work one of the real and the imitation Frenchman varied their day performances by spending much of the night in a cab and in the four printing-offices where the work of composition was being done for the purpose of reading proof and to save the time which would have been lost in transmission of proofs the next morning. The last piece of copy was an ad. for the Railway Steel Spring Company. It was received at 4 p. m., translated on the way to the printing-office, set in French and English and proof read on each, and both pages were on the way to the electrotype foundry at 6 p. m.

The force for doing the work at Washington comprised 125 people—a few more or less at different stages. For the French composition of reading matter and for press work, the entire plant of the Globe Printing Company was chartered for two weeks. This included five linotype machines fitted with French matrices and operated by two shifts of five men each, imported from Montreal and New Orleans. For the English composition eight linotype machines of the Evening Star Printing Company were available after 5 p. m., when the evening paper had gone to press. The metal handled by the machines at the Star office was conveyed at stated intervals to the Globe plant, three blocks away, as produced and as required for the make-up of the papers. This transportation line was in charge of an apparently faithful colored man who possessed a horse and wagon, and the type was packed in locked boxes, of which duplicate keys were retained at each terminal. Once the colored man fell down and added perceptibly to the weird and unholy assortment of grief which made each day's evil sufficient unto itself without any extras. But this story comes later.

In the temporary editorial force were enrolled two pairs of stenographers—French and English—and one editor and two translators — French-English and English-French — for each of the five sections into which the work of the Congress was divided. These people came variously from Montreal, New Orleans and Paris. Their jobs came near being wrecked in the beginning on account of some villainous contract-labor laws. In the selection of all these, it was necessary to secure specialists in the lines represented by the work of each of the sections, as mechanical engineering, civil engineering, etc. There was also a miscellaneous assortment of editors, translators from both tongues, stenographers, office assistants, messengers, etc., constituting a general staff not attached to any particular section. It should be interjected here that each of the editions of the paper was divided into an official part for which the officers of the Congress were responsible, and for which the publisher was responsible to them, and an unofficial part for which the publishing company was responsible to itself and its public only. In the transmutation of languages these parts became respectively "partie officielle" and "partie officieuse," but before the struggle was over it was sometimes wearily thought that "officious" would have been partially applicable to the supervision of both sections, on account of the difficulty of doing a rush job under the hampering influence of continental European conservatism.

For the make-up, the imitation Frenchman before mentioned was found to be the only one available on account of the mongrel nature of the work. He watched everything

as much as he could in the editorial rooms in the New Willard Hotel from about 10 or 11 o'clock in the morning. The actual work on the stone usually began shortly after midnight and the last forms of both English and French editions were generally completed for the press about 5.30 a. m., when the composing room force and make-up men were free to get what sleep they could in the brilliant sunlight of beautiful May mornings. This schedule was followed rather accurately every day and night for 11 days—except one morning.

About 3 a. m. on that eventful dawn it was announced by telephone that the aforesaid colored gentleman was leaving the Star office with the last batch of type for the English edition. The make-up of both editions was well advanced, but the wanting type did not come. Tracers were sent out with definite—very definite and forcible—instructions to hunt up and bring in that type, nigger or no nigger; preferably with, for the administration of certain other, likewise definite, "instructions." About 4.30 it was reported by telephone from South Washington that a stray horse and wagon answering the unpublished description had been found. The horse was comfortably cropping grass in a small park, the wagon with many galleys of type was in in its assigned place in his rear, and further search disclosed his faithful black driver enjoying a deep and comfortable snooze under a tree. The type was not quite re-melted in its passage over the composing stone and to the press. So the paper came out, but it barely escaped the anomaly of appearing in French alone in an English-speaking country.

On account of the composition of the International Railway Congress, opportunity was afforded for some temporary assignments to editorial work that gave much tone to the staff. On one afternoon, M. Edouard Sauvage, the distinguished consulting engineer of the Western Railway of France, was engaged in the office writing an editorial on compound locomotives and incidentally correcting certain French translations; M. Camille Boell, mechanical superintendent of the State Railways of France, was compounding a feature article; the then editor of the London Times Engineering Supplement, and W. M. Acworth, the well-known English railway expert, were concocting personal notices of distinguished British railway men in attendance on the Congress; and Sir Charles J. Owens was dictating his impressions of the system of handling baggage in this country, based upon having been forced to forego certain evening functions because of the non-arrival of his boxes. On one night about two o'clock the present President of the United States, then Secretary of War, and Stuyvesant Fish, then president of the American Railway Association, and the Illinois Central Railroad, corrected proofs with comparative patience and skill and pared the claws of some antagonistic utterances of an earlier hour of the evening; and numerous other high-well-born Herren, Messieurs, Dons, Signori and the like were occasionally engaged upon minor tasks. It was a great staff.

If memory served it would be possible to write some few thousands of pages of manuscript about the history of this one series of the *Daily*, but the regular series, published at Manhattan Beach, followed so closely upon the former that one nail drove out the other and left only a few ragged fibers to show where the first had been. The latest interpolated series was that published in Chicago in March last in honor of the American Railway Engineering and Maintenance of Way Association—the first real daily published in connection with the meetings of this association. This is too recent to have entered deeply into the realm of history. Its internal life was particularly uneventful, and this is becoming a chronic condition with the *Daily*. Perfection of organization, occasional propinquity of editorial rooms and printing-office, and adequate facilities in both, tend to make the publication of even a peripatetic daily a monotonous and arid waste by comparison with what has gone before.

MR. HOOLEY ON DR. SINCLAIR.

"Who's this Awngus Saint Clare 't I hear so much about?" asked Mr. Dennissey one evening as he and Mr. Hooley sat in the café listening to the music.

"He's it," replied Mr. Hooley.

"He's what?" asked Mr. Dennissey.

"He's it. Th' only wan. Th' whole clan. That's what Mr. Saint Clare is," replied Mr. Hooley. "'T's this way, Dinnissey. Mr. Saint Clare, Docther Saint Clare 'tis, he's the wan that knows all there is and some more about combustyon—that's burnin' up coal in th' engine. He wrote a book wan time about combustyon—'How t' Burn th' Manigemint Whin Ye'er Runnin' th' Engine,' something like that. Ye see, Dinnissey, iv ye'er a fireman, there's siv'ral ways to shovel coal. Iv ye shovel this way, ye burn th' coal, and that's all that's to it, ye don't get no stame; iv ye shovel arl th' time 'nd let th' wather go down ye burn th' crown sheet, and that's all that's to it till the's somethin' else, 'nd ye can't till th' rist 'cause ye a'n't there no more; 'nd iv ye shovel coal th' way th' manigement wants it shoveled, ye're stung, d'ye see?"

"Will, thin, afther Mr. Saint Clare'd wrote the book I was tellin' ye about, where he'd towld th' firemin f'r 500 'nd some pages how to pick th' coal, 'nd swing th' shovel 'nd to tell whin they cud see th' ashpan through th' holes in th' fire—'tis all in th' book—he wint out t' Ioway to show some firemin 't he used to know how to do it like the book said. Awngus, he'd sit on the little binch on the lift hand side av th' engine where the fireman 'd sit iv he was n't shovelin' th' coal, 'nd iv th' fireman t'rowed th' coal through th' little door wit'out shpillin' ut, Awngus 'd mark him 'wan' 'n th' little notebook he'd by him; iv th' coal did n't come out th' stack, Awngus 'd say, 'Ye're a good wan,' 'nd mark 'im 'two;' thin he'd look at th' little clock with wan hand; iv th' engineer was n't swearing too hard because he'd no stame at the fut ov th' hill, Awngus 'd say, 'That's a' recht; now another wan!' 'nd iv th' fireman come up t' th' scratch in five siconds he'd mark 'im 'three' 'nd till 'im how he was savin' coal f'r th' comp'ny, 'nd makin' a ricord f'r himself.

"Thin Awngus wrote all about ut t' th' paper 't he has in N' Yawk, th' 'Locommytive Engine Ear-Ring'—'tis a joolry pa-aper, I'm thinkin'—'nd he told all about how he'd learned th' Ioway firemin t' save five hunthred pounds av coal a day by t'rowin' in only wan small shovelful av coal at a time, 'nd kapin' th' door shut 'nd kapin' a shovelin' iv'ry tin siconds be th' engineer's watch. He made a complate diagonal av th' case—diagonalosis, was ut?—What's thim things a docther makes, Dinnissey?"

"Pills," replied Dennissey promptly.

"'Tis not pills I mane, nor capshules, nor yit funerals; but 'tis no matther. Awngus was no Docther thin, annyhow. He wrote it all out and it come out in th' pa-aper. He wint back to his orfis afther some time 'nd asked Hodgins how 't things'd been goin', 'nd him 'way out in Ioway. Hodgins looked sad 'nd said, said he, 'We've putt on six new min 'th month,' says he.

"'Sax new min! W'y, ye're roonin' me,' says Awngus, he says like that; 'Ye're roonin' me. What's thim for?'

"'T' kape thrack av th' discontinyou'd subscriptions,' sid Hodgins. 'Iv'ry fireman on th' books writes, "I'm stoong! Shtop me pa-aper!" 'nd th' six min's th' back shtop,' says Hodgins.

"Will," resumed Mr. Hooley, after a pause, "They've made Awngus a reel Doc since that time, 'nd iv he makes anny mistakes now he burries 'em, like th' other Docs do. He carries th' sporran bag f'r th' McHannix clan, does Awngus, 'nd he's th' only wan that's in th' race forby th' Jones lad that dayclined th' 'lection 'twas two years gone. He knows combustyon, does Doc Saint Clare, 'nd he's a good Doc. I

dinnaw av but wan better, 'nd he comes fr'm some miles fr'm Em'bro town, too."

"What Doc 's that?" inquired Mr. Dennissey.

"Doch-an-doris," replied Mr. Hooley sententiously, fixing Mr. Dennissey with his eye and beckoning to the waiter.

PACIFIC LOCOMOTIVES FOR THE ST. PAUL.

The passenger service of the Chicago, Milwaukee & St. Paul includes a large number of heavy trains which are run on difficult schedules. Between Chicago and Milwaukee, 420 miles, two of the most important passenger trains are often composed of thirteen to fourteen cars, seldom less than ten, weighing 508 tons. The lighter through trains between Chicago and Omaha, 492 miles, carry seven cars of an aggregate weight of 372 tons. On the Chicago and Milwaukee division, 85 miles, trains of 750 tons, composed of fourteen cars, are common, and as many as sixteen cars have been run in one train.

Till within the last year, a heavy class of Atlantic engine, having a total weight in working order of 210,400 lbs. and a tractive power of 22,200 lbs. was used in this service. The performance of the Atlantic engine, with these trains, considering its limitations of weight and power, was very creditable; but in ordering new passenger equipment last winter, the management adopted the Pacific engine in order to meet the increased requirements of this service, and an order of fifty of this class of power was placed with the American Locomotive Company, New York.

These engines, one of which is illustrated herewith, are the first of this type to be used on the St. Paul. They represent a simple, straightforward design of a powerful locomotive, embodying no new or unusual features. The design, however, is worthy of interest because of the very satisfactory balance obtained between weight, power and boiler capacity.

The specifications in regard to the weight per driving axle were very rigid. The maximum weight per single axle allowed by the railway company was 54,000 lbs. At the same time, as large a boiler capacity was desired as had been provided in some recent Pacific locomotives having a weight per axle as high as 57,000 lbs. To meet these requirements necessitated careful attention to every detail with a view of keeping the dead weight as low as possible consistent with strength. That the problems in connection with the design were successfully solved is evident from a careful study of the principal dimensions and ratios given below.

With an ample factor of adhesion of 4.92, these engines have a theoretical maximum tractive power of 31,900 lbs., which places them among the most powerful of recent engines of their class. Based on the horse-power curves published in the American Locomotive Company's Bulletin No. 1002, the theoretical maximum horse-power which they will develop is 1,770. This would be developed at a piston speed of from 700 to 1,100 ft. per minute. With 79-in. driving wheels and a stroke of 28 in., a piston speed of 1,100 ft. is equivalent to a speed of about 55 miles per hour.

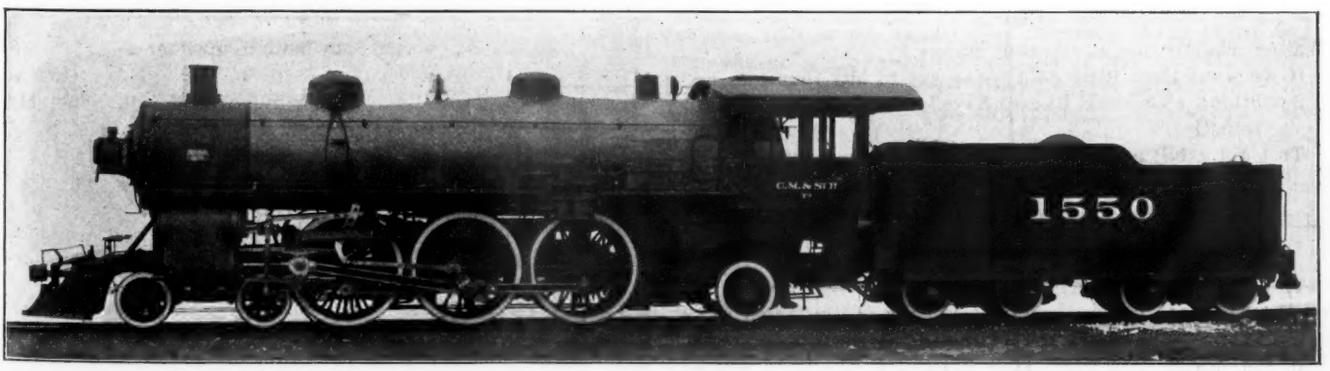
In working order they have a total weight of 247,300 lbs. This gives 7.2 horse-power for every 1,000 lbs. of weight. Compared with a number of the most notable recent Pacific locomotives, this figure is somewhat higher than the average for this ratio.

The large boiler capacity which has been provided is indicated by the ratio between heating surface and horse-power. The boiler, which is of the type having a conical connection sheet, has a total heating surface of 3,937 ft., of which 3,658 sq. ft. is in the tubes, and the remainder in the fire-box and the arch tubes. The design incorporates a 3-ft. combustion chamber which, of course, makes the actual heating surface of the boiler less than it otherwise would be. Based on the actual heating surface, there are 2.22 sq. ft. of heating surface per horse-power, which is about the average for recent designs of this class of engine, and, taking into consideration the fact that the heating surface of the combustion chamber is more effective than the amount of tube heating surface which it replaces, the above ratio would indicate a still greater boiler capacity.

This figure of 2.22 sq. ft. of heating surface per horse-power, taken in conjunction with the 7.2 horse-power per 1,000 lbs. total weight, is evidence of the care with which the design has been worked out; and would indicate a very satisfactory engine for the service for which it is intended. That they have proved successful in service is evidenced by the fact that the St. Paul recently placed an order with the company for twenty more locomotives of this design. The cylinders are 23 in. x 28 in. Steam is distributed to them by 14-in. piston valves, having a maximum travel of 6 in.; a 1-in. steam lap, and ⅛-in exhaust clearance. The valves are operated by the Walschaerts valve gear, the arrangement being the same as that previously employed by the American Locomotive Company on engines of this class, and is designed to give a constant lead of ¼ in. The frames are of cast steel, the main frames being 5 in. wide. The trailing truck is of the Devoy non-radial type with inside bearings.

The following are the important ratios:

Weight on drivers ÷ tractive effort	4.93
Total weight ÷ tractive effort	7.26
Tractive effort x diam. drivers ÷ heating surface	.641
Total heating surface ÷ grate area	80.7
Firebox heating surface ÷ total heating surface (per cent)	6.84
Weight on drivers ÷ total heating surface	.40
Total weight ÷ total heating surface	.63
Volume of two cylinders (cu. ft.)	13.44
Total heating surface ÷ vol. cylinders	.293
Grate area ÷ vol. cylinders	3.63
Total heating surface ÷ theoretical maximum horse-power	2.22
Theoretical maximum horse-power ÷ total weight / 1000	7.2
Theoretical maximum h.-p. ÷ weight on drivers / 1000	11.26



Pacific Locomotive for the St. Paul.

NIMBLE-HANDED FELLOWS.

(Air—The Absent-Minded Beggar.)

When you're at Atlantic City, when you're browning in the sun,
When the Boardwalk's making blisters on your soles,
Wouldn't it chill your very framework to think how you would stand
If the natives found your pocket full of holes?
They're a lively-handed gentry, their acquisitiveness great,
But you and I must take them as we find them;
The season may be rather short, it's begun so very late,
So they never let good money get behind them.

Chorus.

Hotel, boarding-house, shack a mile from the sea;
All of them there for your bills and coin, and glad to have you stay;
("Haven't a single or double room; give you a suite of three.")
Tap your wad for your credit's sake and pay, pay, pay.

There's the waiter in the dining-room you must never overlook,
For you'll never get your dinner if you do;
The African who snatched your bag by some sly hook or crook—
He wants his little compensation, too.
They're nimble-handed fellows, and they've got us where we live,
Though we know their little tricks, we like to try them;
They know we've got the money, though we may not want to give,
But they never let good silver get far by them.

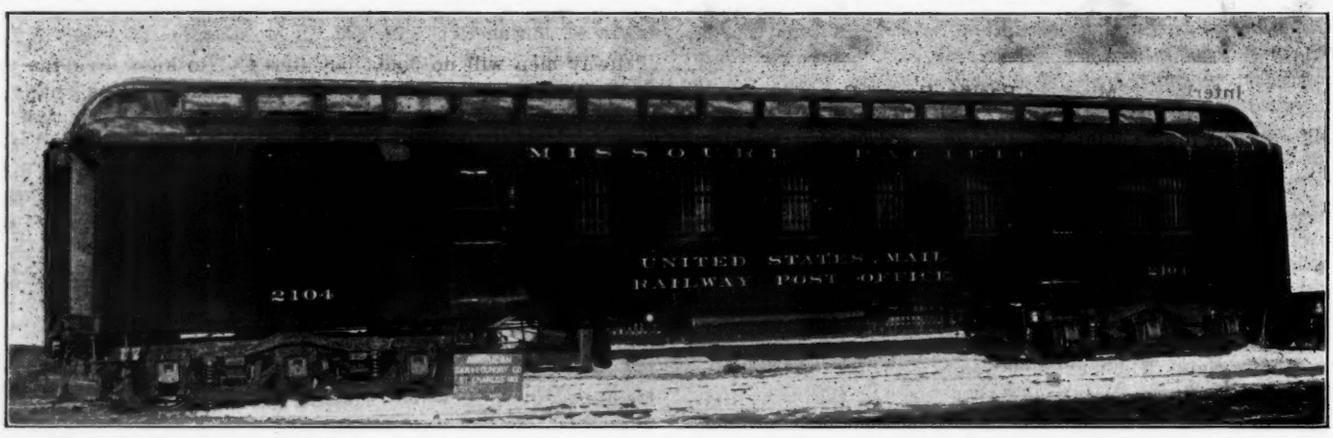
Chorus.

Waiter, chambermaid, elevator man—
If we want their little help we've got to buy them;
("Something else you'd like to have? Too bad it's going to rain.")
Trot out a bill or a silver coin and pay, pay, pay.

MISSOURI PACIFIC STEEL POSTAL CAR.

The new Missouri Pacific postal car as designed and built by the American Car & Foundry Company is illustrated herewith. The length of the car over end posts is 60 ft. 10 in., and the width over side sills 9 ft. 4½ in. The trucks have 38-inch rolled steel wheels, and the axles with 5 x 9 in. journals. The truck frames and bolsters are cast steel, and the total weight of the two trucks is 43,000 lbs., the car body 66,100 lbs., total, 109,100 lbs. The steel underframe is made up of structural shapes. The center sills are 12 in. I-beams 31½ lbs. per ft. These extend in one piece between buffer blocks and pass through the bolsters. The side sills are 8-in. channels 13¾ lb. section. Betwen the center and side sills there are longitudinal supports made of 3 in. channels. Each end sill is built up of two 8 in. channels 11¼ lbs. per ft. The side frame has diagonal braces made of 4-in. channels, except at the door posts, where they are 5 in.

The side posts are 4-in. channels. The outside of the car is entirely of steel, the side sheeting plates being ⅛-in. patent leveled steel, the end sheeting plates 3-16 in. steel, and the roof sheets are No. 16 black steel for both upper and lower decks. The upper deck head lining sheets are No. 22 steel, and the lower deck No. 18, and the side lining No. 16 steel, except at the storage end, where it is No. 11. The interior mail fixtures, tables, letter cases, paper boxes, lockers, etc., are all of wooden construction, and their arrangement is shown in our interior views.



Steel Postal Car; Missouri Pacific.

The side plate is a 4-in. channel with flanges up, and a 11¼-in. plate secured to the inner flange, and the outer flange is riveted to the sign board sheet, which is a 3-16 in. x 11¼ steel. The side frame independent of the side sheeting is the carrying member, the side plate, the side sill, posts and braces forming the required truss.

The body bolster is double built up of plates and rolled shapes, the top plate being 52 in. wide and 5-16 in. thick, running the full width of the car in one piece securely riveted to the top flanges of the side sill channel and center sill I-beams, and to the web plate angle iron stiffeners. The bottom plates, 9¾ in., are also riveted to the side and center sills. There are four main cross bearers placed 10 ft. 9 in. centers, the top cover being 10 x 5-16, extending clear across the car in one piece, and the bottom member is composed of two 3 x 5 x 5-16 angles and 5-16 in. web plate between. There are 14 floor beam supports made of 4-in. channels 5¼ lb. per foot. The lower floor is completely covered by steel plates 3-16 in. thick in the end sections and ⅛ in. thick between bolsters. On top of the 3-16 in. plate is laid a layer of ⅛-in. asbestos board, and over the whole surface of the car will be laid ¼-in. course of asbestos board, and the top floor is maple ¾ x 3¼. The inside lining of the car is 1-16-in., steel, except at the storage end, where it is ¼-in. and ⅛-in. asbestos board is cemented to the back of this lining, covering its entire surface. At each bolted attachment there is a washer of hair felt which serves the double

purpose of insulating the point where the inside finish is brought to bear against the frame of the car and also of deadening the bearing.

A Westinghouse air brake schedule L. N. is used, with automatic slack adjuster and air signals. The braking power

Interior of Missouri Pacific Postal Car.

is 90 per cent of the light weight of the car based on 55 lb. cylinder pressure. The heating equipment is the Gold direct system of steam heat, with six independent coils and no Baker heater is used. The cars are lighted by Pintsch gas, using 5-mantle center lamps and three single flame lamps on the lower deck over the distributing table, and two single flame bracket lamps on the end transom of car over the mail table.

Interior of Missouri Pacific Postal Car.

The Exhibit.

The Homestead Valve Manufacturing Company, Homestead, Pa., has no exhibit this year, but P. L. Rhodes is here looking after the concern's interests.

If you want to see a ventilator that ventilates see the cyclone ventilator which is being exhibited by the Gold Car Heating & Lighting Company, New York.

The report of the Consolidated Car Heating Company, Albany, N. Y., for the year ended May 31, 1910, shows that the total sales far exceeded any in the history of the company, with one exception only.

Fred. C. Bartels, official snake charmer of the convention, gives snake talks every morning after 10 o'clock at the U. S. Metal & Manufacturing Company's booth 337. Call and hear "Bottles" carol on "Barol."

To more satisfactorily care for the large volume of business being received from the south-eastern railroads, the American Steel Foundries have recently opened an office at 906 Munsey Building, Washington, D. C., which will be in charge of W. Ross Gravener.

Railway men will no doubt be interested to know that the Hunt-Spiller Manufacturing Corporation, Boston, Mass., has on exhibition some side rod and knuckle joint bushings made of Hunt-Spiller gun iron. These have given such service as to warrant investigation.

J. G. Platt, mechanical representative of the Hunt-Spiller Manufacturing Corporation, Boston, Mass., is in charge of the company's exhibit. He will be glad to welcome all his friends. Arthur J. O'Connor, assistant to the manager at the works in Boston, Mass., in attendance at the conventions for the first time, is assisting Mr. Platt in greeting friends who call at the booth.

The Independent Pneumatic Tool Company, Chicago, received numerous visitors yesterday, who called to examine the exhibit and renew the acquaintance of those in attendance. The popularity of Thor air tools in the railway shops throughout the country gives them an important place in shop equipment, and this exhibit will undoubtedly attract considerable attention.

A patented feature of great importance in the Jefferson union is the lip of iron which protects the brass ring in the brass to iron seat from damage by direct contact with the steam, and from injury when the pipe is screwed in as far as it will go. The union is made by the Jefferson Union Company, Lexington, Mass.

The exhibit of the Landis Tool Company, Waynesboro, Pa., is in charge of Howard Hollinger, one of the company's demonstrators who prepared the ground engine parts shown, and who will be pleased to give any information concerning the work.

The Union Fibre Company, Winona, Minn., is exhibiting its refrigerator car on the Reading tracks. The St. Louis & San Francisco has asked for the car at the conclusion of the conventions, and will place it on regular runs for service tests.

The Pressed Steel Car Company, Pittsburgh, Pa., is using car Karbolith and Karborundum Karbolith surfacing on 175 new passenger cars for the Interborough Rapid Transit, on

27 mail storage cars, and on 21 other cars for the Pennsylvania Company. It has also ordered a lot of carborundum safety tread from the American Mason Safety Tread Company, Boston, Mass.

"Things are seldom what they seem,
Skim milk masquerades as cream," etc., etc.

Of course the manufacturers of spellerized steel boiler tubes are quite open to conviction that the friend who tagged a disreputable rusty piece of old iron boiler tube "spellerized steel boiler tube," and sent it to a mechanical railway officer, was under a genuine misapprehension; but it is fortunate, to say the least, that the chemist to-day can as readily distinguish steel from iron as skim milk from cream.

E. L. Dayton, whose investigations into the methods of water proofing cotton duck has resulted in the perfection of the fabric now being placed on the market by John Boyle, Inc., New York, will visit the convention in the interest of the company. Mr. Dayton is superintendent of the Bayonne (N. J.) mills. The cotton duck made for passenger coach roofs shown in the exhibit booth is treated with chemicals that neutralize the effect of the linseed oil, which has a tendency to rot the unprotected cotton fibre.

R. C. Totten and Mrs. Totten are attending the convention this year. Mr. Totten is one of the pioneer car wheel makers in the United States, having been one of the founders of the Ft. Pitt Foundry Company 55 years ago. Since then he has brought out the Nicholized chilled car wheel, which is being exhibited in booth 419 of the Nicholized Casting Company, Pittsburgh, Pa.

SAFETY CAR HEATING & LIGHTING COMPANY'S EXHIBIT.

The large booth of the Safety Car Heating & Lighting Company, New York, is decorated and illuminated by beautiful lamp fixtures for both gas and electric lighting. They show the development of the Pintsch system of mantle lamp for railway cars, and the economy of this system is proved by the fact that the maintenance of cost of mantle lamps is only one cent per 100 candle power per hour. The electric lights are supplied by an axle driven generator, which supplies 140 12-candle power lamps. Experience has demonstrated that the control of an axle lighting dynamo by means of a carbon resistance in series with the field circuit is the one method which fulfills the exacting conditions of car-lighting service. This method was introduced by the Safety Car Heating & Lighting Company, and the type "D" regulator, which is now used, is a re-design of this mechanism with such improvements as experience and careful study have suggested. This dynamo regulator and lamp regulator give constant voltage at the lamps with control of the dynamo which results in the best treatment of the storage battery.

This company also exhibits in operation their new "Thermo jet" system of car heating, which offers a unique method of direct steam car heating. It operates with certainty and minimum attention and provides uniform car temperatures under every weather condition. It does this with a marked economy in the use of steam and with a minimum radiating surface. It is difficult to describe this without drawings; but, briefly stated, the car is equipped with a complete and independent circuit of pipe with loops at the ends to provide for expansion. In each circuit, near the middle of the car and secured rigidly to the truss plank, is a plate, through the two guides of which runs the upper radiating pipe carrying an injector casting. The return portion of the upper pipe is also fastened by a clamp to the truss plank of the car at a distance of about 25 ft. back of the injector casting. In this casting there is a nozzle through which a jet of steam is admitted to the circuit, and this injector action causes a rapid circulation throughout the pipes. The expansion or contraction of the 25 ft. of pipe between the injector and the pipe clamp moves the injector body back and forth between the pipe guides. In this way the admission of steam is automatically adjusted. The temperature of the radiating pipes is maintained at any desired point by means of a regulating handle, and the rotation of this handle through proper mechanism has the effect of requiring a greater or less expansion and temperature in the radiating pipes to close the injector valve. When the regulator is set at any particular point, the temperature of the radiating pipes remains constant in spite of changes in train pipe pressure or the amount of steam condensed, the expansion of the 25 ft. of pipe making an absolutely reliable control. The effectiveness of this apparatus is demonstrated by the fact that a variable range in radiating power of the pipes of nearly one to three is obtained.

THE GARLAND VENTILATORS FOR PASSENGER EQUIPMENT.

Burton W. Mudge & Company, Chicago, is actively developing the business connected with the application of the Garland ventilators to all varieties of passenger equipment. These ventilators have been in use on Pullman cars for several years and have proved so successful that they are now in use on nearly 5,000 of the cars owned by that company, and it has been adopted as a standard by them. At the present time they are applying it to the large order of all-steel sleepers building for the Pennsylvania lines.

This ventilator is the invention of Thomas H. Garland, superintendent of refrigerator service of the Chicago, Burlington & Quincy, who has been a student of ventilation for many years and has finally succeeded in making this practical application to passenger cars. No new principle is involved; the opening provided by the deck sash is simply utilized. All the air currents are upward and hence there is no downward draft to annoy the passenger.

One of the annoyances of passenger travel is the distribution of odors from the dining car throughout the other cars in the train and the contracted space of the kitchen has made this rather difficult to ventilate. The Garland system as developed for dining cars by the Rock Island is now in use on a number of its cars, and it effectually prevents these odors from entering the dining room part of the car. Two large double Garland ventilators are placed on the upper deck over the kitchen at the center of the upper deck. These have registers so that the flow of air through them can be regulated. A single Garland ventilator is placed at one of the deck sashes directly over the range. This is very effective in directly removing the vapors and bad odors arising from the cooking. A duplex ventilator is placed in the sashway directly over the side aisle and is connected by an air duct with the refrigerator. This is also found to be very effective in removing bad odors which so often accumulate in car refrigerators, and provides a circulation of fresh air through the stock of supplies. The dining room also is provided with these ventilators in the same way as they are applied to Pullman cars. The principal difficulty with passenger cars with elliptical roof and no upper deck is in connection with the ventilation, and the Garland ventilator is well adapted for the solution of this problem. Where there is sufficient clearance it can be placed directly on top of the roof, or if necessary down on the sides; and the flow of air is easily regulated by neat registers in the ceiling of the car.

In addition to the large number of Pullman cars and the Pennsylvania steel sleepers, the Garland ventilator is used on the Rock Island steel chair cars; the Frisco steel smok-

ing, cafe and dining cars; Cotton Belt dining cars; Virginian Railway coaches; New York Central dining and buffet cars; Southern Railway dining cars; Seaboard Air Line private car; and on many other lines.

FORSYTH HIGH CAPACITY BUFFING DEVICE.

The buffing device made by Forsyth Brothers Company, Chicago, and illustrated by Figs. 1 and 2, was designed to accomplish two things—(1) prevent the buffer plates from pulling apart under all conditions of draft; and on curves as well as straight track; and (2) absorb the heavier as well as lighter buffing shocks, which occur in ordinary service.

Heretofore, it has frequently happened that people have had their feet caught in openings between the buffer plates; these openings (which took place under draft, and were due to the fact that the buffer plates did not have sufficient forward travel) often exceeding two inches. In the case of the Forsyth buffing device, the buffer plates are always held in tight contact with each other; and this is accomplished without the use of an equalizer bar. The latter is liable to constant failure, involves a high cost of maintenance, and is a source of continual noise during the running of the car.

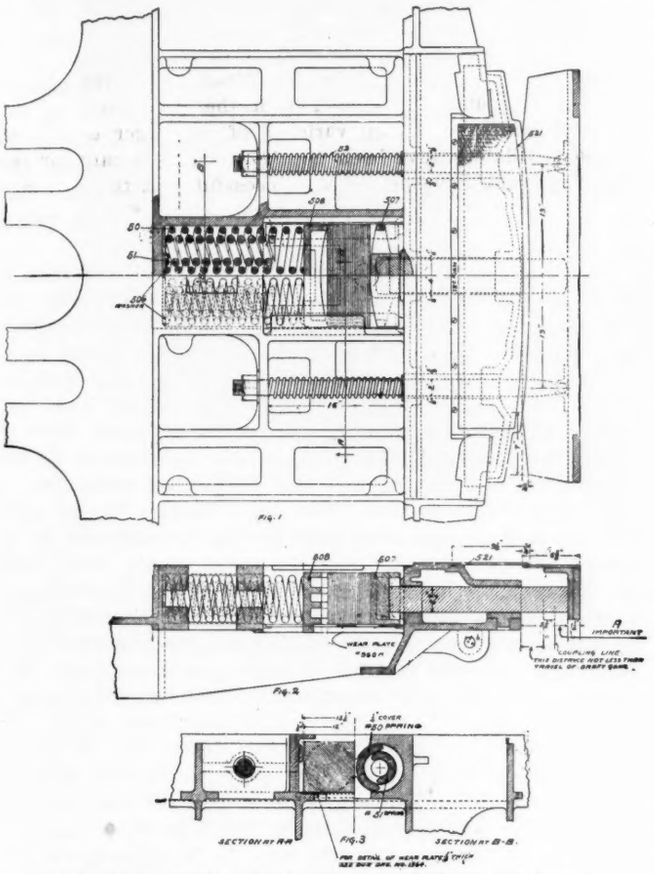


Fig. 2.—Forsyth High Capacity Buffing Device.

While for a considerable time it has been generally appreciated how severe are the buffing shocks in freight equipment, this has not been thoroughly understood with respect to passenger service cars. Dynamometer tests have been made, however, on passenger cars, which show that buffing shocks in this class of equipment and in ordinary service run very high (even during coupling), frequently amounting to several hundred thousand pounds. It must be evident that these shocks are not only responsible for undue jerking and jarring between the cars, but that unless a high cushioning buffing device is used, the shocks are taken almost entirely upon the coupler head and its extension, and the draft gear. This must be apparent, when one remembers that under buff the blows are taken between the outer ends of the pivoted knuckles and the opposing inclined faces of the couplers; or between the bases of the knuckles and the opposing and inclined guard arms. In either case the buffing shocks are multiplied in their destructive effect by being thus taken between relatively pivoted and inclined parts instead of between flat abutting surfaces. For this reason, a high capacity buffing device is particularly necessary to relieve these vulnerable parts of the coupler head, to say nothing of the drawbar extension and the draft gear. Then, too, buffing blows should be taken as nearly as possible on the vertical center of the main sills of the car instead of beneath the platform; the latter having the effect of causing the platform to sag.

The Forsyth buffing device has a shock absorbing capacity of 300,000 lbs. per end of car (or as much more as may be desired) and this cushion will unquestionably be largely instrumental in preventing the loosening of the rivets in the car structure. This device consists of few parts, which are subject to practically no wear; and even if ever driven solid under excessive shocks, the parts so support each other as to prevent failure thereof. The high capacity is afforded by spring friction plates, which, irrespective of the number employed or the force of the blow, can never become deflected beyond the curved surfaces of the follower members between which they lie, which curves are well within the elastic limits of the plates. The friction developed between these plates constitute a large percentage of the capacity of the device and at the same time dampens the recoil to a remarkable degree. One of the peculiar features of this device is that the spring friction plates not only absorb the minor and gradually applied buffing pressures, but, what is much more important, the violent and abrupt shock. The Forsyth device, therefore, differs in this essential respect from other shock absorbing devices.

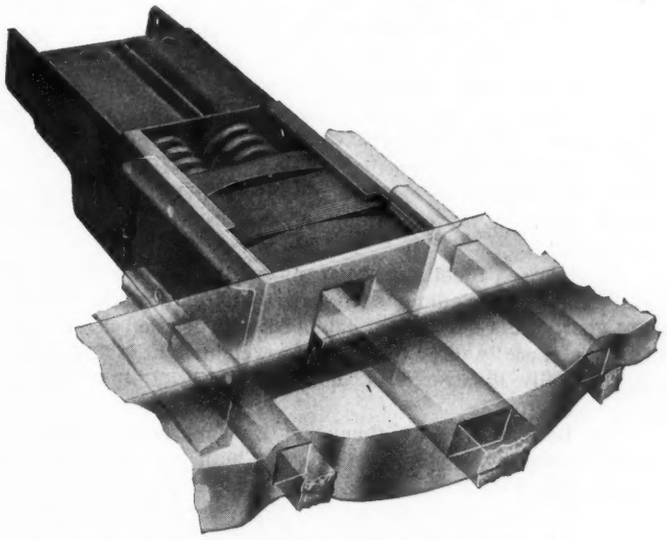


Fig. 1.—Forsyth High Capacity Buffing Device.

The high capacities of the Forsyth buffing device do not come into action until back of the coupling line, consequently coupling is made very easily with this device. In advance of the coupling line, the outward spring tension is almost uniform. Coupling is taken by sufficiently long twin coil springs. Back of the coupling line there comes into action much heavier inner springs; and finally there comes into substantial operation the spring friction plates. The coil springs can never be injured, as they cannot be driven solid, on account of the spring chambers, within which they lie, being deeper than the solid length of the springs.

The Forsyth buffing device may be applied to any built-up, or cast steel end construction of car, as, for example, the

Commonwealth cast steel platform, as shown in Fig. 2. The device is in a cast steel box within which the members are held in proper working relation by means of flanges, which overlap the ends of the followers and plates and prevent the latter from working upwardly.

This device is in service upon numerous cars of the Harriman Lines; Pullman Company; Chicago & Northwestern; Atchison, Topeka & Santa Fe; Baltimore & Ohio, and Southern Railway.

THE TRACK EXHIBIT.

The track exhibit is so conveniently located, and so well deserves attention, that it should receive a host of visitors. Some of the latest improvements in steel hopper cars are shown by the Pressed Steel Car Company, Pittsburgh, Pa., and the Cambria Steel Company, Johnstown, Pa. The steel frame for the Reading coaches affords excellent opportunity for an inspection of every part of the steel structure, both underframe and superstructure. The truck of this car is a new design by the Reading motive power department and is notable for the use of clasp brakes. Master mechanics will be interested in seeing a splendid example of the latest development of the electric locomotive in the 4,000 h.p. engine exhibited by the Pennsylvania Railroad. They will also find a radical departure in firebox construction in the Jacobs-Shupert firebox, which is exhibited by the Baldwin Locomotive Works and the Atchison, Topeka & Santa Fe.

Taking up the exhibit a little more in detail, the Middletown Car Company, Middletown, Pa., shows a 50-ft. steel gondola car, 40-ton capacity, 9 ft. 2 in. wide, weight 36,200 lbs. This car has deep center sills and heavy steel cross bearers. It was built for the Central Railroad of New Jersey. The American Car & Foundry Company, New York, shows a 50-ton gondola with wooden sides, cast steel end sills, and deep side sills. The car is equipped with the Miner friction draft gear. It is 40 ft. long, 8 ft. 6 in. wide and weighs 43,300 lbs.

The Pressed Steel Car Company exhibits a new design of self-clearing, quick-dumping ore car, with safety door operating gear. This car is also equipped with friction draft gear. It has a capacity of 50 tons and the weight light is 32,700 lbs. It was fully illustrated in the *Daily Railway Age Gazette*, June 15, 1910.

The Bettendorf Axle Company, Davenport, Ia., shows a steel side dump gondola which was built for the Chicago, Burlington & Quincy in July, 1908, and is sent to show its condition after more than two years' service. The car is 40 ft. long, of 50 tons capacity, and weighs 37,800 lbs.

The Union Fibre Company, Winona, Minn., sent a refrigerator car which is equipped with Brown's collapsible tank and Leeds' weather-proof ventilator. The car has the Sampson steel underframe built by the Whipple Car Company, Chicago. It is completely insulated by four layers of the Union Fibre Company's linofelt.

The Harlan & Hollingsworth Corporation, Wilmington, Del., has a very interesting and instructive exhibit in two coaches, one the bare steel frame, and the other the completely finished steel coach with wood finish on the outside and inside. This car is 63 ft. long, and has a seating capacity of 78 persons. The weight of the body is 72,200 lbs., and of the two trucks, 29,400 lbs.; total, 101,600 lbs. The underframe is a new design with center sills made up of two 18-in. I-beams laid vertically with one 18-in. I-beam laid horizontally as a spacer and stiffener. The diagonal truss below the windows is made up of channels, the posts are of angle iron and the carlines are of bar iron. The cars are equipped with the Gould vestibule platform and friction buffer. The truck is a novel and interesting design with cast steel pedestals with channels between, and the wide bolster is cast steel with outside anti-friction side bearings. The car is lighted with Pintsch mantle lamps, it has Edwards sash fixtures and platform buffers. These cars are part of an order of 65 cars for the Philadelphia & Reading. Twenty of them are vestibule coaches with dark mahogany finish and inlaid decorations. Twenty-five coaches have open platforms and white mahogany finish, and the rest are baggage and combination cars.

The W. T. Van Dorn Company, Chicago, exhibits a Southern Pacific box car with corrugated pressed steel ends. These are similar to that exhibited by sample end last year, but they are provided with hinged doors so that the car can be loaded through the end with lumber, rails and other long materials.

The Kilbourne & Jacobs Manufacturing Company, of Columbus, Ohio, exhibit a large steel contractor's car with a pneumatic dumping arrangement. It has a capacity of 16 cu. yds. level filled and will carry 23 cu. yds. when heaped. It is 24 ft. long, 9 ft. wide and has a depth of 24 in. The car is made entirely of steel, excepting the floor, which is of hard wood, and is equipped with Westinghouse air brakes and M. C. B. couplers. The Hutchins Car Roofing Company, Detroit, Mich., shows its new all steel-steel carline roof on a New York Central car. Full particulars and samples of this roof are seen in the Hutchins booth on the pier.

The Cambria Steel Company shows a 50-ton steel gondola from the new design having four hoppers. This is one of a thousand cars ordered by the Baltimore & Ohio. Its weight is 49,900 lbs. The Cambria Steel Company also shows a 50-ton low-side steel gondola for the Reading. This car is equipped with Gould friction draft gear. The weight of the car is 44,100 lbs.

The Jacobs-Shubert boiler and firebox, already referred to, as built for locomotives of the Santa Fe, is shown by two full sized fireboxes, one illustrating the inside construction and the other the complete firebox and outer ribbed shell.

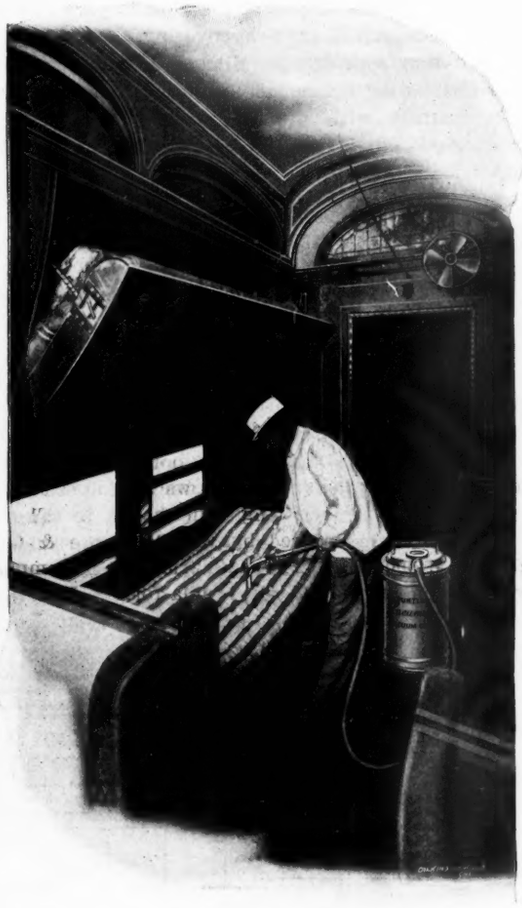
The new electric locomotive of the Pennsylvania Railroad above mentioned is of the articulated double cab type, consisting of two American type locomotives placed back to back. The design is the result of the coöperation of the Westinghouse engineers and the locomotive committee of the Pennsylvania system. The cabs, frame, running gear and mechanical parts were built by the Pennsylvania at its Juniata shops, and the electrical equipments were built and the complete locomotives assembled by the Westinghouse Electric & Manufacturing Company. Each half of it carries its own motor and complete equipment. The two halves are permanently coupled together at the driving wheel ends. The motors are arranged for direct current 600 volts. The weight of the locomotive complete is 157 tons; the weight on drivers 200,000 lbs., and on each axle 50,000 lbs. The total wheel base is 55 ft. 11 in. The contract tractive effort is 60,000 lbs. with a maximum drawbar pull recorded on test of 79,200 lbs. The normal speed with full train 60 miles per hour; normal service 550 ton train to be started and accelerated on the 2 per cent tunnel grades; maximum contract horsepower 4,000. The weight of each motor complete with cranks is 43,000 lbs.

COACH CLEANING BY THE VACUUM PROCESS.

Coach cleaning by the vacuum process is now considered the best, most thorough, and least expensive method.

One large railway having a terminal in Chicago was the pioneer of railway coach cleaning by this method, and it is constantly enlarging and improving its equipment for this work. The old method of cleaning with broom and beater did not successfully remove the dust and dirt, while it destroyed the fabrics. The vacuum cleaner, on the other hand, removes the dust and dirt which lies underneath the carpets as well as that upon the surface and adds to the life and ap-

pearance of upholstered fabrics by straightening and raising the nap. For cleaning mattresses, quilts, comforters, pillows, etc., it is unexcelled. It thoroughly cleans the woodwork of coaches, thus doing away with alkali washes, which are very damaging to the varnish and require expensive rubbing to



Coach Cleaning by the Vacuum Process.

restore the polished surface. Vermin, cinders, dust and dirt of every kind are taken up and deposited in the receptacle. The saving in time and labor alone, it is claimed, will soon pay for the Duntley cleaner, which is made by the Duntley Manufacturing Company, Chicago.

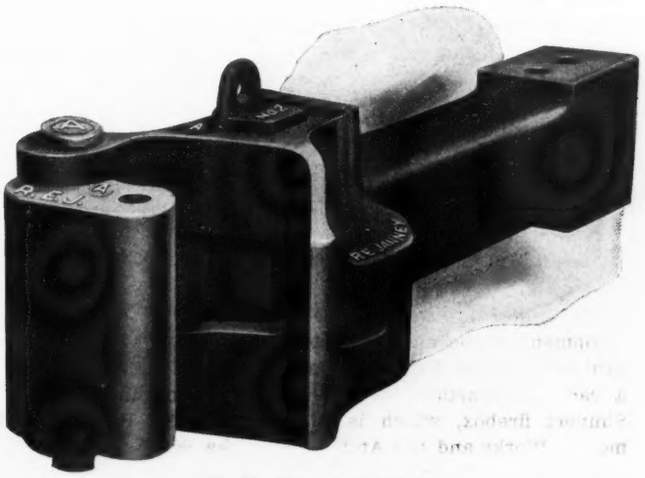
COUPLERS.

The present demands for heavy equipment and high speed, with the almost universal use of hump tracks in switching service, has made the question of couplers an important one, and necessitated a constant effort on the part of manufacturers to turn out a coupler capable of standing the shocks and blows which seem to be unavoidable in present day practice.

The American Steel Foundries, Chicago, are fully prepared to meet the demands of modern service, and this is clearly seen by an inspection of the coupler exhibit at booth 168. A total of 13 couplers are shown, six of them being arranged as they would appear in service. Three styles of couplers, with suitable uncoupling rigging for use on engine pilots and front ends of switching locomotives, are also shown. A side unlocking coupler, a standard top lift freight coupler, a passenger coupler and a top lift freight coupler are also shown.

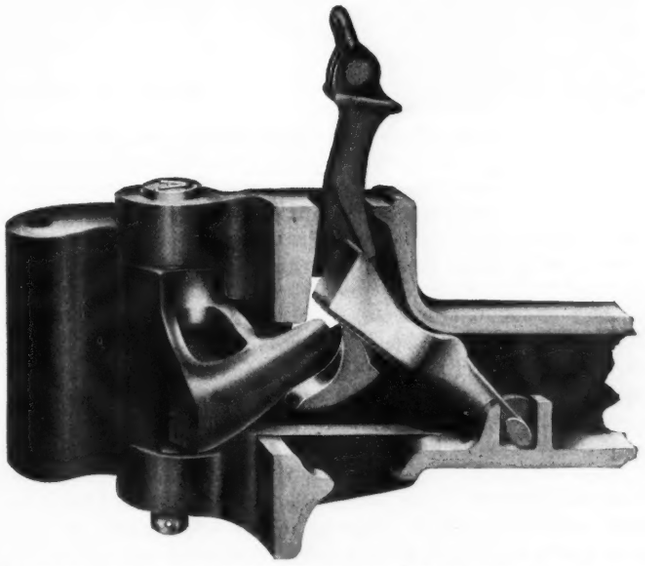
The R. E. Janney coupler, a photograph of which is shown, has been on the market for several years, and is well and favorably known. There are about 750,000 of them in service at the present time. This coupler has been improved during the past year, although it has been a favorite, due to its strength, and small number of moving parts requiring only a single vertical locking pin to perform all necessary operations.

It is designed to meet all the requirements of the M. C. B. tests, as well as the safety appliance law, and is recommended where the needs of service demand a coupler of extreme simplicity.



R. E. Janney Coupler.

The Simplex freight coupler has now been in service for about three years, and about 200,000 of them are in use. The lock of the Simplex coupler, as shown by the accompanying cut, is entirely contained in the interior of the coupler head, where it is well protected from damage. The function of the lifter is only to throw the knuckle open and to raise the lock onto the top of the knuckle tail, after which the lifter drops



Simplex Coupler; Showing Positions of Parts When Throwing Knuckle.

back into its normal position in the coupler head, where it is protected when the knuckle is open ready to couple.

The arrangement of the locking parts of Simplex couplers is such that the lock can be thrown off the lock-set position without opening the knuckle. This is a feature very much appreciated by trainmen when a cut has been made in a string of cars at the wrong place.

The coupler includes all of the recommendations and suggestions which have been made by the Master Car Builders' Association. Special attention has been given to the contour of the knuckle tail and the coupler head, so as to make them coincide accurately and to permit two engaging couplers to mate readily at very slow speed. This feature, with the wide opening provided by the knuckle, makes a positive coupling, regardless of the relative position of the couplers or the speed at which they meet.

A movement in the lifter of only 2¼ in. is required from the closed position with a Simplex coupler to unlock the knuckle, and a total of 4 in. to unlock and throw the knuckle to its fullest extent. The locking surface on the knuckle is 4¼ in. square, and the bearing surface against the opposite wall of the coupler 5½ sq. in. This short lift does not require close adjustment in the uncoupling chain, and also prevents accidental uncoupling on account of short or improperly applied chains.

The Simplex coupler, owing to the locking parts being contained within the head, is well adapted for a side lift arrangement, and the American Steel Foundries are prepared to furnish couplers of this design for ballast car use or where the needs of the service or preference of the users call for a coupler of this style.

THE FAESSLER REMOVABLE DRIVING BOX BEARING.

The time and expense required to renew driving box bearings in locomotives are caused principally by the necessity of taking out the driving wheels; and any improvement which will permit of renewing a bearing with the box in place must result in an important economy.

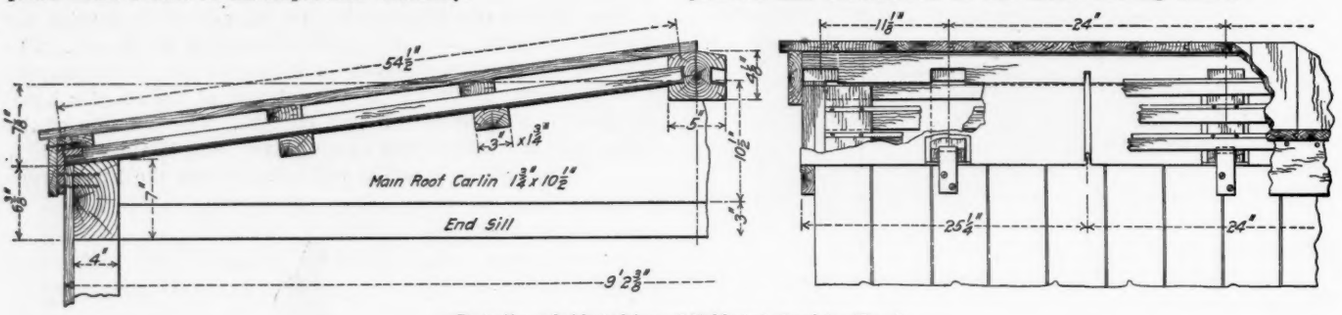
The J. Faessler Manufacturing Company, in addition to their well-known boilermakers' standard and special tools, exhibit a locomotive driving box with removable bearing and special automatic lubricating device. In the box the brass is turned to a neat slip fit and is not pressed in. It is locked in position by a heavy cast steel cellar, which is secured by two nuts. Between the journal and the cellar is a plate of corrugated steel sheet resting on springs which extend down into the cellar. These corrugations are shaped so that the revolution of the axle tends to return the lubricant to the cavity in the top of the box. The lubricant, in the form of grease, is pumped into this cavity in the crown of the box and as it expands it flows over the bearing and is then returned by the action of the corrugated sheet as above described. This improved driving box bearing has been in service on six engines of the Wabash for about a year and a half; it is also in use on the Pere Marquette. In addition to the great advantage of saving time in renewal of bearings, it is economical in the use of the lubricant, and the life of the brass itself is very much longer, as on account of its construction it does not require renewal when loose, as is the case with the pressed bearing, but can be worn down much thinner. The cellar has a tongue and groove fit in the solid projections on the bottom of the box, which prevent the two sides of the box from spreading. The special clamps for extracting the cellar, and jigs, for machining the improved bearing and maintaining their standard sizes, are also exhibited in connection with the box itself.

SOMETHING NEW

The Walker & Bennett Manufacturing Company, New York, is showing in its space on the ballroom floor a unique folding divan for private car use. It can be made any width—a full-sized bed for two people or the dimensions of an arm chair for one person. The sample shown is pure Sheraton in design and upholstered in rich covering. When open as a bed, it contains a mattress, pillows, blankets and sheets, which are supported on an independent spring that does not come in contact with upholstered surfaces. A box or receptacle underneath for odds and ends is conveniently located.

HUTCHINS ALL-METAL INSIDE ROOF.

The detailed drawings shown are of the Hutchins all-metal inside roof. The roofing sheets and subframe work along the eaves of the car are secured by wrought iron clips, passing through the side plates. It is unnecessary to use any caps or pans either above or below the sub-carlines or rafters, as the roofing sheets themselves cover the car with metal. Hutchins felt strips are furnished with the roof, to be placed underneath the sub-carline and on top of the roofing sheet as well as a protection, against water, to the sub-carline. The roofing sheets are independent of the sub-carlines or sub-rafters and are not subject to the weaving strains of these members. The roofing sheets are joined together to provide for the movement of the car as well as the expansion and contraction of the metal roofing sheets.



Details of Hutchins All-Metal Inside Roof.

The Hutchins Car Roofing Company, Detroit, Mich., manufacturer of this car roof, is exhibiting in space 431. This company is represented in Chicago by the Spencer-Otis Company, Railway Exchange, and in New York by the United States Metal & Manufacturing Company.

sheet, to act as a cushion for the protection to the roofing

NATIONAL SPRING PARALLEL GUIDES.

The National Lock Washer Company, Newark, N. J., is exhibiting something entirely new for car windows, called Spring Parallel sash guides. They consist of two rigid metal bars, one on each side of the sash, between the sash stops. They are equipped with springs which press these guides against the sash, making a dust and draught proof sash which can not rattle or swell tight, nor can the sash fall suddenly and cause an accident. The same sash will fit any window opening in a set.

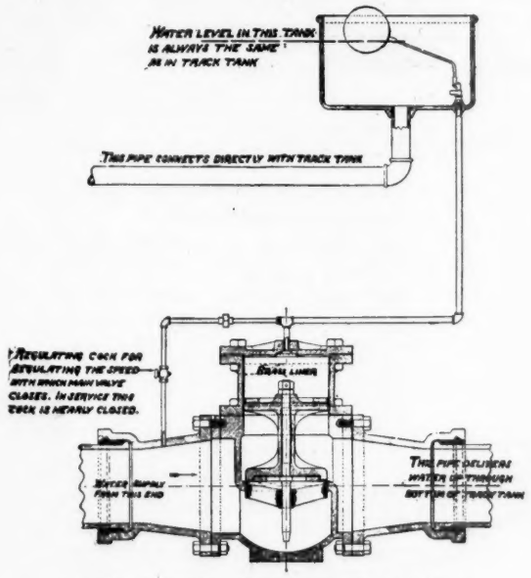
Old car sash can be easily equipped with these guides, making them work as well as those applied to new sash. There can be no rattling of sash in dry weather, and on the other hand it will always work free in wet weather, as guides adjust themselves. There is nothing to get out of order. The company claims that they will last the life of a car, and that the use of these guides eliminates the expense of easing new sash, which has to be done in some cases several times during the first year.

AUTOMATIC TRACK TANK VALVE.

Many of the larger roads have adopted the track trough system for their fast passenger trains, which consists of a trough of suitable width and length, from which the water is scooped up and discharged into the tender by an attachment on the locomotive.

To use this method successfully and economically, some means of automatically controlling the flow of water to the troughs must be employed. The cut herewith shows an apparatus designed especially for this purpose, and used on such roads as the Pennsylvania, the New York Central and Hudson River and the Lake Shore and Michigan Southern, where they have demonstrated their practicability and reliability.

The water level in the trough is regulated by the float in a small tank on the same level as the track trough, and connected to it by a suitable stand pipe. When the water is lowered in the trough, the float valve opens, allowing the water in the hydraulic chamber of the supply line valve to escape. The pressure in the main then gradually forces the valve open and allows the water to flow into the trough. As soon as it has reached its proper level, the float valve closes and the pressure in the main acts on the piston head in the hydraulic cylinder of this valve through the pipe connections shown, and the latter is closed.


WATER LEVEL IN THIS TANK IS ALWAYS THE SAME AS IN TRACK TANK
THIS PIPE CONNECTS DIRECTLY WITH TRACK TANK
REGULATING COCK FOR REGULATING THE SPEED WITH WHICH MAIN VALVE CLOSES. IN SERVICE THIS COCK IS NEARLY CLOSED.
SUPPLY LINE
WATER SUPPLY FROM THIS END
THIS PIPE DELIVERS WATER OF TROUGH NOT FOR OF TROUGH TANK

Sheffield Automatic Track Tank Valve.

The valve is simple, said to be thoroughly reliable, and is designed to require practically no attention. The device is manufactured by the Sheffield Car Company and sold by Fairbanks, Morse & Co., Chicago.

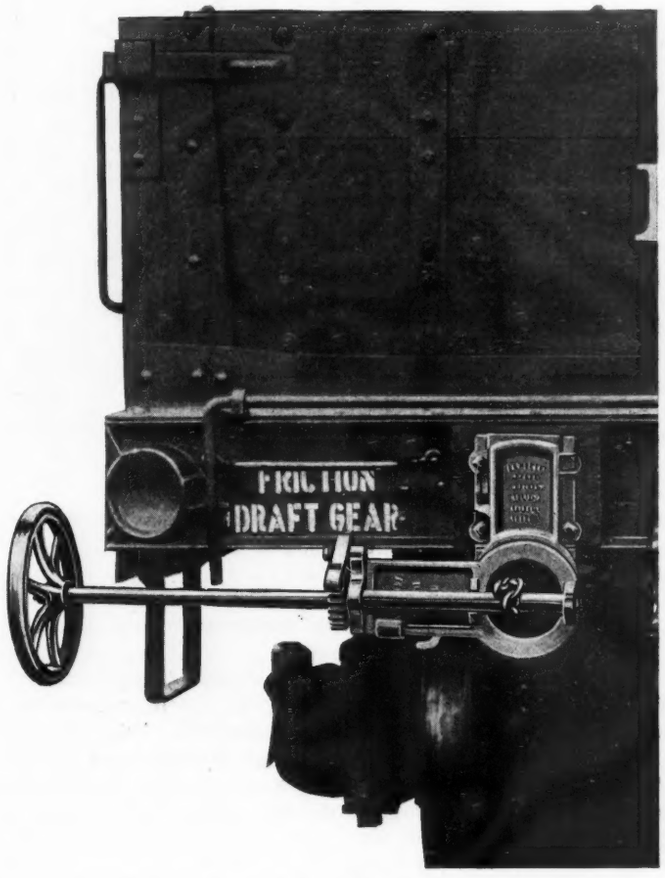
REDUCE YOUR HOSE BILL.

Anything that overcomes the delay of trains, or eliminates the cost of failures, is worthy of the attention of railway men. One of the most essential parts which must be kept in first class condition in order to run trains successfully is the air brake equipment.

At booth 322, the Sprague Electric Company, New York, has on exhibition the Sprague flexible steel armored hose, which the company claims will prevent failures, and at the same time reduce the cost of maintenance. The design consists of a rubber hose covered with an interlocking steel armor, which covers the hose and presents a practically continuous flat surface for it to bear against when under pressure. Visit this booth and see just how this hose is made. Note its flexibility and why it cannot chafe or kink.

FEASIBLE DROP BRAKE STAFF.

Sugar plantations throughout the southern countries are rapidly adopting the Feasible drop brake staff as standard on their flat and cane car equipment, according to reports of the U. S. Metal & Manufacturing Company, New York. Canadian roads are equipping their logging cars with the same device, while numerous roads in the United States have adopted it as standard on their flat and drop-end gondola equipment, having found that the Feasible effects a considerable saving in equipment maintenance. Discarded staffs and wheels, mute witnesses of a hard life, are a rarity along the lines of these roads. A sample staff is on exhibition at booth 337 of the above company.



Feasible Drop Brake Staff in Horizontal Position.

HEAVY GUILLOTINE SHEAR.

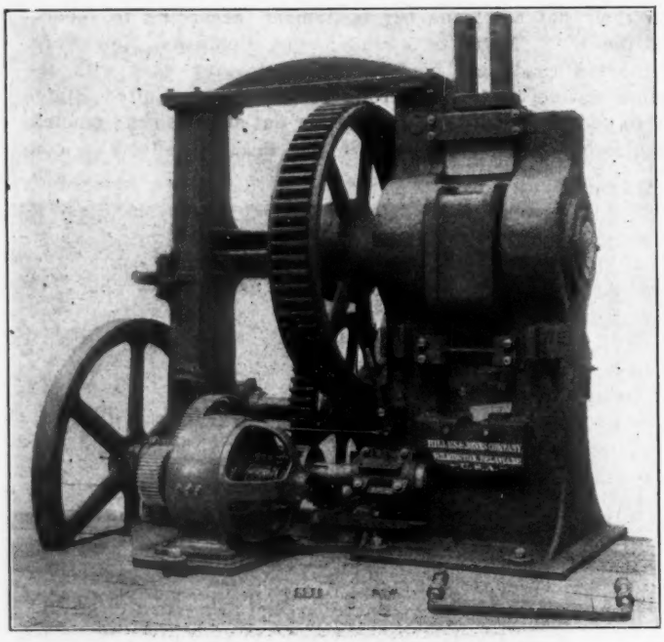
The accompanying photograph illustrates a heavy guillotine frame bar shear designed especially for blacksmith shop work by the Hilles & Jones Company, Wilmington, Del. The main frame, sliding head, gearing and sundry minor parts are of cast steel, making practically an unbreakable shear.

The machine will cut off 5-in. square steel bars cold. The sliding head is counterweighted through heavy springs. The machine is substantially double geared, both driving shafts being carried in split babbited bearings with offset caps so that these shafts may be readily rolled out of position when necessary, also giving the best possible bearing for the shafts.

The clutch is controlled by an automatic stop and operated by both hand and foot levers placed in convenient position for the operator. The driving is by a 30-h. p. motor, directly connected to the fly wheel shaft through cut gearing.

A hold-down is provided to prevent the bars from tilting,

and there is an adjustable gauge block for shearing to lengths. This same machine can be used for shearing angles or round bars by substitution of proper shaped blades. The

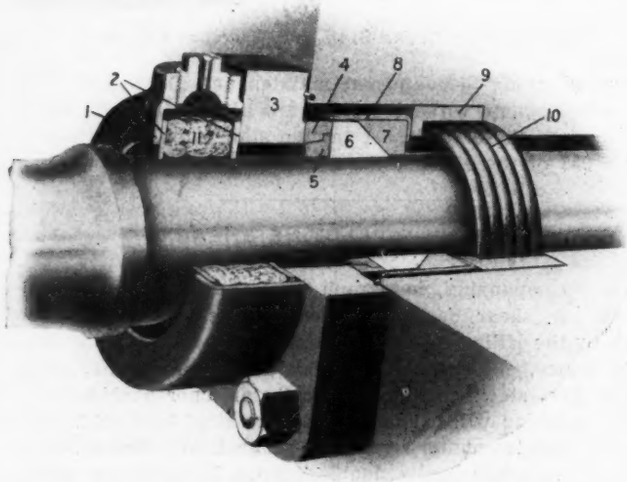


Hilles & Jones Heavy Guillotine Shear.

manufacturers build this type of machine in a variety of sizes down to the small shear suitable for bolts up to 1 in. in diameter.

KING METALLIC PACKING.

For over a quarter of a century The United States Metallic Packing Company, Philadelphia, Pa., has been engaged in making metallic rod packings; in that time bringing its product to the position of the standard metallic packing in American railway service. The company, having a knowledge of the conditions and a clear understanding of the require-

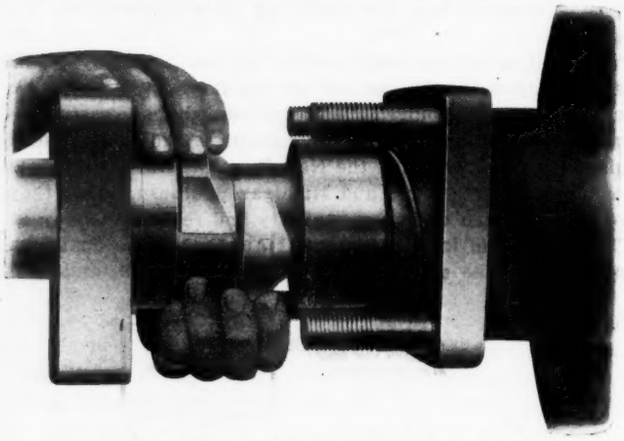


Sectional View of King Metallic Packing.

ments, designed, some two years ago, the King packing, shown in the accompanying illustrations.

In the development of the King packing the aim has been to get a simple packing, to eliminate, as far as possible, those features which have proved to be the usual causes of trouble, and to produce a packing that would be steam tight under service conditions.

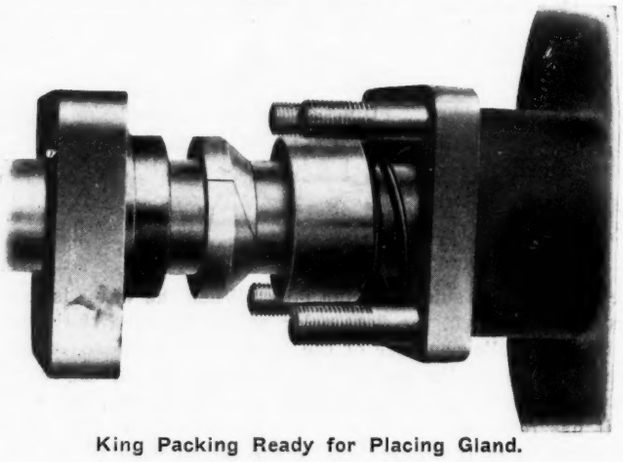
Reference to the illustrations shows that the King packing has few parts and only one ground joint, that between the gland 3, and the sliding plate 4-5. The King packing ring 6 is in two parts only, and these interlock as shown. There is no vibrating cup, parts 7 and 8 acting only as a follower.



Placing King Packing on Shouldered Rod.

By the use of the steel shell 8 the greatest possible room is obtained for vibration in the stuffing box.

Parts 5 and 7 are in halves for shouldered rods. The ease and quickness with which the packing ring can be applied is well shown by the cuts. The convenience of this feature on a locomotive with leaking throttle can readily be seen.



King Packing Ready for Placing Gland.

The King packing is in use on 20 American railways and is giving uniformly good results under very hard service. One of the advantages claimed by the makers is, that other makes of metallic packing can readily be changed over to the King type, at comparatively small expense, by the furnishing of a few new parts.

MOHAIR PLUSH SEAT COVERING.

In the construction of new car equipment, the interior finish should resemble as much as possible a comfortable room in a home. A large quantity of mohair plush in various styles is used for upholstering purposes in drawing rooms, libraries, living rooms and hallways in many of the most carefully appointed homes. It is not generally known, although a fact, that this same class of material is used extensively to cover car seats. From this it will be seen that mohair plush, well selected, tends to make a railway car very homelike and comfortable. The field from which to select patterns and colors is very large; and the color scheme can be determined with considerable ease. The Massachusetts Mohair Plush Company, Boston, Mass., makes a mohair plush well adapted for use in passenger car construction.